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### MEDICAL STANDARDS OF FITNESS IN THE ROYAL AUSTRALIAN AIR FORCE.<sup>1</sup>

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THE degrees of medical fitness required by the Royal Australian Air Force are influenced to some extent by the fact that all members are required to be fit to fly as passengers and the aircraft are not necessarily pressurized.

Ground staffs are not just enlisted in the air force, but are enlisted in specific trade musterings. Most of these musterings are technical—for example, fitter airframe and engine, radar mechanic, armament mechanic, engine mechanic, cypher assistant, medical orderly, mechanical transport driver *et cetera*.

Close liaison is maintained with the technical branches with a view to determining that any specific physical requirement is met which will ensure the safer and more accurate performance of duties associated with each trade. The medical branch must therefore have some idea of the role each mustering plays in the day-to-day activity. For example, a simple mustering, such as that of mechanical transport driver, entails a visual standard and a normal or safe colour vision ("safe" includes the anomalous trichromate who, while confusing certain colours, does not

confuse red and green within limits). It may be asked why we insist on this. The answer is that a mechanical transport driver has to drive across aerodromes and airstrips, around hangars *et cetera* as well as on ordinary roads. He has to be able to see clearly the movement of aircraft, also he is not permitted to drive across the strip without getting the green light from the tower. Further, a cypher assistant is a man in whom we insist on a minimum visual standard which is correctable to 6/6 with glasses, but whose convergence and accommodation are within limits for his age and whose manifest hypermetropia is not more than 2.25 dioptres. This man is reading at close range small cypher type and it is therefore necessary for him to be able to see it, but at the same time to have a convergence which will not rapidly fatigue and give rise to frustration, incorrect interpretation and later neurosis. (This was the fate of some of the earlier cypher assistants during the war who did not possess these ocular qualities to an appropriate degree.) The man who operates the radar screen is somewhat similarly placed in this connexion and a similar standard is required for him. The engine mechanic must have visual standard 1. He must also have normal or safe colour vision. Visual standard 1 is required so that there can be no doubt about the accuracy of his handling of tools, such as micrometer screw gauges *et cetera*, when aircraft engines are being assembled and overhauled, high degrees of precision being required. Faulty work in this connexion, of course, may mean unserviceability in the air with possibly fatal results. Further, the colour vision requirement is a result of the fact that the complicated detailed charts nowadays are very similar to an anatomical atlas, with their complicated electrical systems, and their fuel, oxygen, ammunition and other pipe lines which are displayed in the charts in colour. There

<sup>1</sup> Part of a symposium on standards of fitness, held by the Victorian Branch of the British Medical Association on May 7, 1952. This paper was read on behalf of Air Vice-Marshal Daley by Group Captain R. B. Davis.

must be no doubt about ability to follow these charts and the connecting up of these complicated systems in the modern aircraft. The same applies to the electrical fitter in his electric servicing and work, in which colour plays an important part in the charts and in the wiring. Colours are used for identifying various gas cylinders, so here again the requirement applies.

These are just examples of the extra requirements which, mainly on the visual and colour vision side, affect a large number of air force musters.

When the visual acuity falls off during service, each case has to be considered on its merits in a serving airman experienced in his trade; but occasionally a fitter whose visual acuity cannot be corrected with glasses to the degree required for fine work may have to slip back from a mustering of, say, engine mechanic to fitter general, at which he may be employed on mending simple equipment of a rougher character at an air force unit, such as barrack maintenance material *et cetera*. Similarly, certain musters require minimum auditory standards, particularly those associated with wireless. The old method of hearing the whispered voice at 20 feet is still used by the Royal Air Force and the Royal Australian Air Force, but there is developing now an attitude of mind, particularly in aircrew, in which the ability to hear the appropriate frequencies in a background of noise is becoming closer to acceptance as a general test.

In general, therefore, as a policy in the Royal Australian Air Force, when an applicant is considered for appointment to a particular mustering, over and above the fundamental requirements as already set out by Major-General Norris in our accepted minimum requirements on a general physical and psychological basis for regular service in the permanent forces, the air force must go into this relationship between vision, colour vision and auditory standard according to the special mustering associated with the man's work. Further, it should be remembered that the constitution of the air force is such that it is a voluntary service, even in war, and a member is required to serve anywhere in the world according to the direction of the Air Board. Thus we cannot, in ordinary circumstances, enlist a man who is in Class II, but each case can be taken on its merits. Again, with reference to ordinary physical disabilities, such as loss of fingers, limbs, hands *et cetera*, in a highly specialized service the possible selection of individual subjects must always be open for consideration based upon the effect of the disability—that is, over and above the minimum requirements of the applicant's particular trade or calling or profession.

The constitution of the air force does not necessarily always call for some of the physical attributes which will be required in the front-line combat soldier, and therefore the higher skilled tradesman with minimum physical requirements may be accepted with certain disabilities of a somewhat mechanical nature which, while permitting him to use his equipment and trade skill and not being aggravated by general service, may not necessarily give the service an expert in armed or unarmed combat. Apart from the Royal Air Force regiments, the air force, while training ground staff in drill, armed and unarmed combat *et cetera*, and aerodrome defence, turn to their specific technical tasks within their special sphere of activity. The major ground combat of the army must have some bearing, therefore, on the medical standards required in various circumstances.

With regard to aircrew, of course, the situation has special implications, in that we have not only to have a clear history of past illnesses whose existence might interfere with training and ability to carry on flying duties, and a good family and psychological background including an indication of stamina, but also special requirements in the visual, auditory, respiratory, circulatory and nervous systems. Certain psychological tests are useful here in aiding the medical selectors by reaction time records, visuo-motor coordination activity, and the multiple investigations which only the psychologists are able to pursue with a view to getting an all-round indication of a man's ability to meet situations, make rapid and good decisions, and carry out appropriate manoeuvres when travelling at

high speed and perhaps high altitude, not only in the face of the enemy but in the face of bad weather, difficult terrain, a dead engine *et cetera*. While I do not think that time permits us to go into any detail of aircrew fitness and requirements at a gathering such as this, you will all appreciate that no stone must be left unturned in taking the medical history. If necessary, a psychiatric examination is carried out in order to exclude the possibility of breakdown anywhere from the first solo days to the final "show-down" against flying difficulties or the enemy.

The whole respiratory system must be sound, in view of the requirements for working at reduced oxygen pressure, the need for wearing oxygen masks and the requirement for good oxygenation of blood in all circumstances. This is, of course, associated also with good ear, nose and throat history.

#### Ocular Standards.

Visual acuity and visual alertness are of prime importance. We insist on visual acuity of 6/6 in one eye uncorrected and 6/9 in the other, correctable for the present; but I feel that we shall be getting down to visual acuity of 6/6 in both eyes uncorrected, or even 6/5. However, the problem here is that one excludes good men with other qualities. The Royal Air Force at the moment will accept a man with visual acuity of 6/12, but they do not like it. Visual alertness, particularly, with modern aircraft is a factor to be considered all the time.

Colour vision must be normal or safe, so that no mistake as to airfield lights or control tower signals is made between red, green and white. In doubtful cases one has to remember that such signals may have to be interpreted through fog and rain.

#### Ocular Poise.

All aircrew must be within certain limits of exophoria, esophoria and hypophoria, and although this subject is open to question, it is associated with ability to land aircraft from the visual judgement point of view.

Convergence and accommodation are also required to be within certain limits. Further, manifest hypermetropia must not exceed 2.25 prism dioptres. It is found that if this exists, even though visual acuity is good, it means that the individual is himself accommodating and converging all the time to see his instrument panel. With small degrees of anoxia following debilitating diseases like influenza *et cetera* his accommodation may go and he will have increased difficulty in reading his instrument dials, so that fatigue and inefficiency will result and perhaps a fatality.

The visual fields must be normal. Many new problems are arising as a result of very high altitude flying, over 40,000 feet, which are calling for special study by the ophthalmologists of the air force.

#### Ear, Nose and Throat.

As has been mentioned in relation to the respiratory aspect of fitness, airways must be clear, with sinuses giving good airway, and the Eustachian tubes must be patent and proven to be patent, otherwise they will not cope with the changes of barometric pressure in ascent and, particularly, descent of aircraft.

The testing of auditory acuity, apart from the whispered voice and tuning forks, requires an audiogram so the complete picture is obtained. Intercommunication, ground to aircraft, between members of the crew *et cetera* in a background of noise calls for a high degree of sensitivity; but the Royal Air Force are taking a more realistic approach to auditory selection of such subjects, particularly in war-time, and a rather complicated system of testing has come into being for aircrew which cannot be detailed here. However, there is a feeling, not in regard to the initial entry of permanent personnel, but for war-time purposes, that possibly those should be considered who may have up to a certain number of decibels of loss at some frequencies but not affecting the speech range, and who can prove themselves in a special test with background noise to interpret speech sounds as they would have to do in practical flying. In this connexion one has to watch, by

audiogram records, the fall-off in the higher frequencies, which is often found in personnel in noisy occupations, that they do not reach too high a figure in the lower speech range frequencies.

In connexion with the auditory examination great care has to be taken in excluding personnel who may have had perforations and scars liable to be broken by sudden changes of atmospheric pressure when diving *et cetera*. A radical mastoid operation definitely excludes the subject. Applicants with "critical" mastoids may be occasionally selected on their merits.

#### Circulatory System.

The circulatory mechanism must, of necessity, be powerful and capable of sustained effort and with limitations in blood pressure, both diastolic and systolic. Blood pressure must be explored with regard to hypertension and hypotension. Maintenance of good cerebral circulation is, of course, affected by the pulling out of dives, in which pilots "black out" through the pooling of the blood in the lower limbs from centrifugal force; this calls for a strong circulatory mechanism to ensure reasonably quick recovery.

#### Nervous System.

The nervous system must be normal and functioning satisfactorily in conjunction with the circulatory system, as vasomotor attacks are, of course, regarded very unfavourably.

#### Physical Aspects.

In general, well-developed and controlled limbs are required to perform all functions adequately. Nevertheless one does not necessarily look for the big men. Some of the most successful aircrew have been men of small stature with alert minds, good visual acuity and active mentality. However, there is a problem with stature limitation as a result of the need for ejection seats in modern aircraft, so that the thigh length must not be at present longer than 25 inches. "Sitting high" must be limited, otherwise the head is likely to be too close to the canopy of the cabin.

You will appreciate that one of the problems of aircrew is that a man who must be in good physical condition, alert, active and well trained, is in certain types of units (for example, bomber aircraft and transports) for some hours at a stretch, obliged to play a restricted and rather cramped and sedentary role. It is all the more necessary, therefore, for him when on the ground to keep his various systems in a high degree of efficiency.

#### Conclusion.

I regret that only such a sketchy description of the standards of fitness for aircrew can be given in this short space of time, but the details would be far too extensive to cover. I hope the references to the ground staff will show the policy to be maintained in the air force in connexion with the standards required.

#### STANDARDS OF FITNESS FROM THE LIFE ASSURANCE VIEWPOINT.<sup>1</sup>

By W. W. S. JOHNSTON, M.D., F.R.A.C.P.,  
Melbourne.

If I were to keep strictly to the subject on which I have been asked to speak, I fear you would find the result but a dull recital. I therefore propose, in addition, to extend the field by considering, necessarily in a broad way, some of the principles governing assessments in certain instances in which there is a departure from normal health or normal physical findings.

<sup>1</sup>Part of a symposium on standards of fitness held by the Victorian Branch of the British Medical Association on May 7, 1952.

Primarily life assurance is concerned with the problem as to whether a proponent engaged in one of the usual civilian occupations and subject only to the risks encountered by the average citizen is likely to achieve his normal span of years. Admittedly there are many forms of proposal other than those maturing at death, but I think it can be assumed that the medical assessor usually first approaches each case with normal expectancy of life in his mind. In the process of assessment, apart from medical examination, he is disposed to pay considerable attention to certain aspects of heredity, occupation, habits and personal history. In the last-mentioned category particular stress is laid on events occurring during the preceding few years, five sometimes being taken as an arbitrary figure. On the whole, sequelæ tend to follow within that period; consequently illnesses prior to that assume less importance.

Looking at the matter broadly, one expects certain attributes in the ideally favourable proponent—good heredity, healthy occupation, good conditions of living. There should be a satisfactory medical past history and a reasonable certainty of a future occupation or mode of life not unusually hazardous. Thus a service pilot, though perfectly fit in the usually accepted sense, would not be a first-class risk from the life assurance viewpoint because of occupation. Jockeys are regarded with disfavour, and professional pugilists and wrestlers are unacceptable.

It will be noted that information on such points may be obtained by direct questioning and should theoretically be easily available, provided that the proponent is of average intelligence. In practice, however, a considerable discrepancy is often found between the personal statement as filled in by the proponent alone and that completed in the presence of a medical referee. Undoubtedly this difference arises in certain instances because of the difficulties in interpreting the meaning of particular questions, whereas in other cases the medical presence seems to exert a stimulating effect on the memory or the accuracy of the proponent.

I am at some pains in this short address to stress some of the factors involved in life assurance examination, because in many instances the questions put are regarded as unnecessary or unduly meticulous, and the same critical attitude is sometimes adopted by medical referees.

I would emphasize the fact that the aim of life assurance societies is to bring as many clients as possible into the fold. It is difficult to obtain figures indicating the proportion of proposals accepted by the various offices, but it is probable that this would be well above 90%. Of those accepted, it is again likely that a figure well above 90% would represent those taken at select rates.

I now propose to deal in some detail with various aspects regarded by life assurance societies as being of major importance. In doing so, while endeavouring to give reasonable grounds for an unfavourable viewpoint in some instances, I hope to indicate that with improved methods of treatment and increasing knowledge of the pathology of certain diseases the standards of acceptance are being liberalized and the criteria of physical fitness are being continuously reviewed.

#### Heredity.

In regard to heredity, conditions such as insanity, epilepsy, diabetes, arteriosclerosis and cerebral hæmorrhage and tuberculosis come readily to mind. Of the last-named I will speak more fully later.

In the cases of the first three mentioned above, the chances of inheritance of the defect if only one near relative is affected are regarded as so slight as to be negligible, except with insanity, in which it would seem that younger proponents show a slightly greater risk if one parent has been so afflicted.

As to arteriosclerosis and cerebral hæmorrhage, we should remember the teaching of Sir William Osler:

Longevity is a vascular question which has been well expressed in the axiom that a man is only as old as his arteries. To a majority of men death comes primarily or secondarily through this portal. The onset of what may be called physiological arterio-sclerosis depends, in



the first place, upon the quality of arterial tissue (vital rubber) which the individual has inherited, and secondly upon the amount of wear and tear to which he has subjected it. That the former plays a most important role is shown in the case in which arterio-sclerosis sets in early in life in individuals in whom none of the recognized aetiological factors can be found. Thus, for instance, a man of 28 or 29 may have the arteries of a man of 60, and a man of 40 may present vessels as much degenerated as they should be at eighty. Entire families sometimes show this tendency to early arterio-sclerosis—a tendency which cannot be explained in any other way than that in the make-up of the machine bad material was used for the tubing.

#### Habits.

Tobacco, alcohol and drugs are the items concerned in the "habits" category.

The deleterious effect of tobacco is such an individual matter and the indications of "nicotine poisoning" are so elusive that any dogmatic opinion seems ruled out. But I think that the banning of smoking during hard physical training owes something to more than tradition, and we have all seen cases of cardiac irregularity with multiple extrasystoles associated with heavy smoking. I have no doubt that in certain cases of recurring nasal sinusitis and antral infection, cessation of smoking limits the incidence. Whether the recently suggested relationship between smoking and lung cancer will become a matter of importance in this regard is something that awaits the result of further investigation.

Alcohol presents a most difficult problem viewed from the standpoint of either medical referee or physician. Individual assessment from both the proponent's estimation of the amount and the referee's judgement as to the effect is in many cases a matter of guess-work. Evidence of habitual over-indulgence is generally obtained in one way or another; but the man who regularly "has a few" on social occasions or has five or six beers a day presents a considerable problem. Age possibly has a bearing on the decision when a doubt arises as to over-indulgence. It can be argued that the middle-aged or elderly man previously known to be temperate has no time to develop cirrhosis or other complications, whereas the young man is bound to show the effects later in life.

As with tobacco—but fraught with much greater consequences—the individual effect of alcohol is most difficult to assess. Nor does it seem possible to specify a certain amount as being productive of an early demise—individual reaction, the age of the proponent, the type of work (whether sedentary or heavy labouring), all have a bearing. The capacity of the barman to resist the temptations of having some "on the house" is not rated very high by the hard-headed assurance community, and those in this occupation are heavily loaded.

#### Medical Problems.

I now propose to consider some of the problems that may emerge from the personal medical history or physical examination.

##### Asthma.

Asthma offers a problem often difficult of solution. Here a distinction is now made between asthma with chronic lung changes such as bronchitis and emphysema, which necessarily spells unfitness, and the asthma often occurring in young subjects as an allergic phenomenon, intermittent in character and perhaps recurring only at lengthening intervals.

Improved methods of treatment and the accumulating evidence that adverse effects on longevity are often minimal have led to a much more favourable view in such cases. One would, however, regard a subject presenting while in an attack as warranting deferment.

##### Epilepsy.

At present it is unlikely that an epileptic would be accepted at select rates until a long period of years had elapsed since a fit had occurred. It is possible that certain

subjects of *petit mal* might be taken with a loading after a period of stabilization with absence of fits for five years.

In this connexion, the significance of a past history of giddy turns or fainting attacks or so-called "blackouts" must be carefully determined. Careful questioning may elicit information that transfers a seemingly innocent and passing symptom into the much more serious category of *petit mal* or even major epilepsy.

#### Weight.

Life assurance assessors lay great stress on tables of weight, because there is actuarial evidence of undoubted validity that shows a steeply rising mortality increase for those considerably overweight, particularly above the age of forty years. At this stage of life there is some truth in the adage, "the thinner you are the longer you live".

It would seem that even allowing some latitude for a familial configuration of the heavyweight type or for the fact that the increased weight conforms to the general bodily make-up of the individual in height and breadth of stature—and it is doubtful whether these really deserve favourable consideration—the *avoidupois* itself is the thing that counts. The heart and circulation have to cope with this mass in propulsion, day in day out, and it is the extra work thus involved that eats into the cardiac reserves.

For many years I have kept amongst my papers a post-graduate lecture on "Medical Aspects of Life Assurance", delivered nearly twenty years ago by Dr. R. Scot Skirving of Sydney, at that time chief medical adviser to the Australian Mutual Provident Society. I hope he will forgive me for quoting without his sanction an extract from it as it appeared in this journal shortly after; but it is one of the penalties of great teachers and leaders in medicine that they should suffer thus at the hands of plagiarists. After discussing the matter of overweight and the life assurance viewpoint, he states: "Fat people do not stand acute disease as well as spare folk. They make poor subjects for severe operations. Their tissues often heal less kindly than those whose bodies are not swathed in blubber." This, of course, was written long before the use of antibiotics in treatment, but I have no doubt that the principle still holds true. It is of interest to note that Dr. Scot Skirving's scale of loading for overweight individuals seems to have been eased in subsequent years; but actuarial figures, particularly those based on large numbers of records in the United States of America, bear testimony to his sound judgement in this regard.

Quoting from a recent American review on obesity and its relation to health and disease by Armstrong *et alii*, an editorial article in THE MEDICAL JOURNAL OF AUSTRALIA of March 29, 1952, states that as a group the overweight men had had a mortality well above the average at every age, and in general the greater the degree of overweight the higher the mortality. For example, the percentage of actual amongst expected deaths for men aged thirty to thirty-nine years was 84 for those of average weight, 120 for those 15% to 24% overweight and 137 for those 25% to 34% overweight. In each age group the figures were similar. Results of the same order were obtained for women.

There was a fairly steady rise with increasing weight in deaths from cardio-vascular and renal diseases. The most recent study has been carried out over the past twenty-five years on about 26,000 men and 25,000 women who were considered sufficiently overweight to warrant their being charged a higher premium. The overweight men had a mortality in the aggregate one and a half times that of standard insured men. The men with pronounced obesity had a mortality of 79% above normal. Similar figures were found for women. Degenerative disease of the heart, arteries and kidneys contributed most of the extra deaths.

Weight deficiency in itself is regarded less seriously than formerly. If we can eliminate the wasting diseases such as tuberculosis, diabetes and thyrotoxicosis amongst others—and as our methods of diagnosis improve this becomes easier—a person even considerably below normal weight may be regarded as favourably equipped for longevity.



### Hypertension.

Hypertension is one of the most controversial aspects in the estimation of physical fitness, largely because of the elasticity of interpretation of the term. It is known to all of us that the mere finding of a figure or set of figures at some particular time does not necessarily give an accurate indication of the blood pressure in general—nor, even if it did, would it necessarily provide the clue to that person's future health, immediate or remote, regarding his cardio-vascular or any other system. I use the phrase "accurate" advisedly, for admittedly the figures act as a pointer. But appearing as something tangible, they have attained an unmerited importance in our eyes. We may be morally certain that an otherwise normal subject who presents figures appreciably above the average has no organic lesion and displays in this way merely a temporary reaction to immediate conditions such as emotion, hurry or cold; but how far are we to allow this presumption to discount the rise? May not such a person habitually react in such a way to emotion or other stresses? Indeed, there is quite an amount of evidence that such individuals form an appreciable proportion of those who in later years constitute the large body of permanent hypertensives.

This brings up the matter of how far life assurance assessments should be influenced by the opinion of the proponent's own medical attendant. It may be argued that the isolated finding of a raised blood pressure by a life assurance medical officer should not invalidate normal results found perhaps frequently by the proponent's own medical attendant under the more familiar conditions of home or consulting room. Here comes in the very important distinction between our professional attitudes, on the one hand as life assurance referee, on the other as practising physician. Unconsciously perhaps, and quite correctly I submit, we as physicians associate ourselves with our patient's hopes and fears; we try to buoy him up in time of sickness or anxiety, and with his improvement we develop a spirit of optimism. Thus quite unconsciously our judgement tends to become coloured by our wishes; faced with some unfavourable sign, we think back in our minds to those who have successfully surmounted the disability, be it tuberculosis or temporary hypertension or discharging ear. But the assurance actuary has other views, and his cold figures rather than the doctor's humane impulse have the final say with the medical referee.

Probably life assurance and general medicine will never regard blood pressure in the same light.

The matter is put in a striking manner by an American authority (Symonds), quoted by Dr. Halls Dally in his book on "High Blood Pressure". If a practitioner should see 1000 patients with high blood pressure at age sixty years and bet with himself that 974 would survive the year and only 960 did survive, he would not feel downcast. In fact, he would probably point to the record with pride and boast of his ability in prognosis. But life assurance would have to tell him that his mortality was 150% in that group, and a medical director who never made a better guess than that would not keep his position for long. General medicine would look complacently at the living, but life assurance would ruefully regard the dead, for 40 claims would have to be paid instead of the 26 expected.

Let me make one more comment to illustrate the difficulties of this problem. I can best do so by quoting a personal experience.

In the early days of the second World War I was called on together with the late Dr. Eric Cooper to examine for enlistment a high-ranking officer. To our consternation we found blood pressure figures which, according to our army medical rules, must have meant rejection. Suddenly an inspiration came to Dr. Cooper, and he suggested taking the reading on the other arm—the left. To our inexpressible relief, these figures were normal—or at any rate sufficiently near by the exercise of a judiciously elastic interpretation. It is of interest that this officer came through the whole turmoil of the war most successfully in every way.

That simple device, substituting the left arm for the right, was fraught with very important consequences for

the army—but I still do not know which figures should have been regarded as the correct ones.

I have a vivid recollection of the demonstration by Dr. Robert Southby in this hall many years ago of the fact that considerable differences of blood pressure in the two arms may exist, and of the principles concerned therewith. The criticism has been made that no control series of observations was made in which the blood pressure in the left arm was taken first. I am informed by Dr. Southby that although this is the case, a certain number of subjects were so examined on subsequent occasions with comparable results. It was a splendid example of painstaking observation and ingenious experiment carried out during the conduct of a busy general practice, and one that should live in the annals of this Branch.

### Heart Disease.

In heart disease we enter a field which is perhaps the most important in the whole realm of life assurance, in view of the fact that heart disease, including all cardio-vascular-renal disease, is by far the most common cause of death. There is no need here to spend time stressing the conditions that obviously require deferment, such as valvular disease, congenital heart disease, *angina pectoris*. The real difficulties arise in the case of abnormalities not necessarily indicative of organic disease. I have in mind certain alterations of rhythm, murmurs, tachycardia and bradycardia. Sir James Mackenzie's emphasis on the capacity for work of the myocardium is no infallible guide to the life assurance medical referee. The occasional young man with aortic regurgitation may be a champion athlete—but his chance of an average span of life is slight.

Fortunately, the time has passed when the mere presence of a murmur was sufficient to imply heart disease. But the systolic murmur must always remain as a problem in diagnosis and evaluation.

Parkinson and Hartley (1946) state that in their series of 2500 recruits examined, 10% were found to have incidental (or "functional") murmurs of impressive intensity. Such murmurs are generally soft and short, and they vary in intensity both with position and with respiration to a greater degree than organic murmurs. They are unaccompanied by symptoms or signs of heart disease. Radioscopy shows a heart normal in shape and size. The important features in assessing a systolic murmur are loudness and length, the presence or absence of a diastolic murmur, and evidence of enlargement of the heart on X-ray examination. These authors quote Paul White as having shown that there is a distinct difference in prognosis between the three groups of loud, moderate and slight murmurs. They add that the conduction of a murmur is little more than a measure of its intensity, and they hesitate to call a loud systolic murmur incidental or functional, even in the absence of collateral signs of heart disease.

In certain cases modern aids to diagnosis are essential, and when difficulty is experienced by a careful and skilled clinician, the help of a cardiologist together with his technical equipment in the way of electrocardiography and radioscopy should be sought.

In regard to heredity in heart disease, it is interesting to note that Sir John Parkinson is quoted (1951) as saying that "in cardio-vascular cases one may save a little time by omitting the family history. It has little or no value for diagnosis and not much for prognosis". It is true that this was the consultant physician speaking and not the medical assessor, as is shown by his further comment: "Such retrospective enquiries may make a gloomy introduction to what might be a cheering interview, and I never make them."

### Pulmonary Tuberculosis.

Pulmonary tuberculosis presents so many difficulties that one doubts whether the subject should be introduced into this short survey for fear of still further obscuring the problem. But it recurs so frequently and gives rise to so many differing opinions that some reference seems essential. There is, however, one point of common agree-

ment, in that the behaviour of the infecting organism is so unpredictable that dogmatism as to the outcome in any particular case is unwarranted.

The difficulties may be illustrated by one or two common examples. How should we regard an attack of pleurisy in an apparently otherwise healthy person? We may say that such a symptom must be regarded with suspicion; but after what period of quiescence may our suspicions be sufficiently allayed and the proponent be accepted with a loading? To increase the complexity, many of the patients with so-called pleurisy, with pain lasting for two or three days only and without auscultatory verification, have probably a muscular and not a pleural basis for the pain. After an undoubted attack of dry pleurisy it is wise to accept the proponent only after a year of observation, and even then with a small loading. A pleural effusion demands greater caution.

What should be our attitude to a minimal calcified lesion, demonstrated frequently during mass radiological examination?

One method of approaching the problem is to try to place the case in one of the following groups arranged in order of gravity: (a) negative history of tuberculosis, but positive X-ray evidence found on previous X-ray examination; (b) tuberculosis suspected but not proved—for example, pleurisy with effusion; (c) definite history of pulmonary tuberculosis. In (a) one would be prepared to accept as a select risk a subject with a primary calcified lesion, checked by several X-ray and bacteriological examinations including culture of sputum and gastric contents, provided that other aspects were favourable. In (c) there exists a very different position, and acceptance cannot be recommended even with a minimal lesion and the most favourable findings under at least four or five years—and then with a heavy loading. In regard to these subjects with a definite history of tuberculous infection, I find myself trying to decide, amongst other things, (i) whether the condition has become quiescent, (ii) if so, at what date it did so, (iii) what period should then be allowed to elapse before acceptance can be considered, (iv) how the additional risk of recurrence should be assessed—in other words, what the loading should be.

There are favourable aspects which allow of certain proponents being accepted, generally of course with a loading. On the other hand, such features as far advanced tuberculosis, suspected activity, cavitation, the previous performance of thoracoplasty or lobectomy, and a history of a combination of pulmonary and extrapulmonary infection, would require rejection.

It may be that the advent of modern methods of treatment, particularly in the surgical field, may enable a more optimistic view to be taken if present indications are borne out. Thus surgical resection is being carried out for certain types of early disease—for example, tuberculoma—and some of the subjects who have undergone thoracoplasty may well be regarded as good risks after a lapse of time.

#### *Heredity.*

Heredity as such now assumes a minor role, since the importance of contact has been demonstrated so conclusively. X-ray examination now allows many proponents to be accepted as select who would formerly have been loaded on account of a family history of tuberculosis.

#### *Peptic Ulcer.*

In view of its frequency and its association with a pathological process so variable in its effects, it is inevitable that the problem of peptic ulcer raises many issues, ranging from the mere suggestion of its possibility, under the innocent guise of "indigestion", to the other extreme of definite ulceration, involving potential hæmorrhage or perforation or malignant change.

The basis of assessment in cases in which there is a clear-cut history of ulcer rests on the presence or absence of such serious complications—and on the period of time that has elapsed since "cure", as indicated by freedom from symptoms and cessation of active treatment. Here again,

modern surgical methods have introduced a fresh problem for the medical assessor; but although in many cases the results of such operations as partial gastrectomy have been satisfactory, a cautious attitude of observation and careful statistical study must precede any ready acceptance of such subjects after major surgical treatment.

#### *Albuminuria.*

In practice, one finds that the assurance referee does not gain much help from the more elaborate tests of renal function—any appreciable degree of renal failure is generally evident by simple means. Tests for albumin in a series of specimens of urine, including one passed in the early morning, together with a microscopic examination for casts and red blood cells, usually give the information required. A recent history of tonsillitis or scarlet fever complicates the picture and may make some period of observation desirable.

#### *Glycosuria.*

If glycosuria is found at the time of examination, in the absence of a history of diabetes, three further specimens of urine are generally tested. If there is still a doubt as to the significance of the finding, a glucose tolerance test should decide the matter. A blood sugar curve indicating so-called "renal glycosuria" is nowadays usually regarded as warranting acceptance at select rates. Further investigation along such lines has enabled many proponents with glycosuria to be accepted as first-class lives.

#### *Otitis Media.*

*Otitis media* constitutes a difficulty in assessment that occurs very frequently. With modern methods of treatment the possibility of septic infections of sinuses, meninges or mastoid or the formation of a cerebral abscess is much diminished. Aspects of the condition that affect the outlook include the site of the perforation if present (antero-inferior being the most favourable), the degree of deafness, the nature of the discharge and its chronicity (or otherwise). As an example, a proponent with a history of discharge within the past three years from a central or high perforation may require a loading. A proponent presenting with a profuse or odorous discharge would be regarded very unfavourably.

#### *Deafness.*

Deafness itself is significant only if it is bilateral or of severe degree. While the use of hearing aids lessens risk in some cases, it must be remembered that these may not always be in use under conditions of extra risk—for example, in city traffic. In many cases a satisfactory conclusion can be reached only by obtaining the opinion of an otologist.

#### *Defective Vision.*

Complete blindness constitutes an insuperable bar, but proponents with the ordinary degrees of refractive error, satisfactorily reduced by glasses, can be regarded as select "risks". Loss of one eye as a result of trauma is not regarded as an added risk, provided the vision of the remaining eye is normal.

#### *Hernia.*

The common type of hernia, small and reducible, is regarded as an added risk if no truss is worn, and a small loading is generally regarded as reasonable. If the hernia is retained by an efficient truss which is constantly worn, the risk is regarded as negligible.

#### *Varicose Veins.*

Varicose veins do not prevent acceptance at select rates unless they are severe or ulceration has taken place.

#### *Comment.*

So that we may not rate ourselves too high in this matter, we as a profession should realize that a great deal of life assurance business is done without medical examination being demanded. In this case the inquiries about past medical history are more wide embracing, and

particular stress is laid on the health at present and for the past five years. With particulars as to height and weight also, it may be expected that a clue will be given to the presence of any of the more serious disabilities. However, the advantages of utilizing the physician are tacitly acknowledged by such common usage as the requiring of medical examination over the age of forty or forty-five years, or by placing a limit on the amount of the sum assured without examination.

It is of interest that initially no medical test was imposed, and in one of the old British companies the method adopted for nearly 100 years was that of selection by personal appearance before the board of directors; for this reason there was always at least one medical director on the board.

In an interesting article on "Under-Average Lives" by F. Kenchington, B.A., appearing in *The Journal of the Chartered Insurance Institute* in 1950, the author states that in the course of a scrutiny of the papers of subjects previously rated-up, postponed or declined over a long period, to see how many subjects would have got through without being called up for examination if the information which would be necessary under a non-medical scheme had been available, it was found that the number was remarkably small—showing, indeed, how few are the complete surprises in the medical examiner's room. These subjects were mostly among the older proponents and their handicap was attributable mainly to diseases of the heart or kidneys.

Bearing on the question of longevity and the great increase in life expectancy in recent years, there is an interesting reference in one of the "Pelican" series of books by Professor H. D. F. Kitto, entitled "The Greeks", in which he refers to the comparatively great age attained by certain well known figures of antiquity, who presumably lived on the usual Attic diet, consisting of barley meal, olives, a little wine, fish as a relish, meat only on high holidays. The usual dinner consisted of two courses—the first a kind of porridge, and the second a kind of porridge. It was a spare diet—though suitably interrupted by drinking parties—but together with the active out-of-door life of the ordinary Greek, it bred a vigorous race of men.

Professor Kitto sets down at random from a recent century the names of Haydn, Mozart, Beethoven, Goethe, Schubert, Mendelssohn, Wordsworth, Coleridge, Keats, Shelley, and from a Greek century a comparable list of names—Æschylus, Sophocles, Euripides, Aristophanes, Socrates, Plato, Isocrates, Gorgias, Protagoras, Xenophon. The age at death of those in the first list is, respectively, seventy-seven, thirty-five, fifty-seven, eighty-three, thirty-one, thirty-eight, eighty, sixty-two, twenty-four and thirty years; of those in the second list, it is seventy-one, ninety-one, seventy-eight, at least sixty, seventy, eighty-seven, ninety-eight, ninety-five (?), about seventy and seventy-six years respectively. Shelley, of course, was drowned; but Æschylus and Euripides (apparently) both met with accidental deaths; Socrates was executed and Protagoras died in a shipwreck.

Although there may not be a strict actuarial basis for the belief, it would seem that expectation of life must have been higher in Greece than in any modern country—at least until quite recent times. Maybe the mode of life of the Greeks has a lesson for us, and in these troublous times of disquiet and frustration we might well try to emulate their poise, their sane outlook and their ability to think clearly.

#### Conclusion.

In this contribution I have purposely omitted many points so as not to obscure the general picture. I trust that I have been able to convince you that the standards of fitness in life assurance are not irrevocably fixed, but react to changing views and advancing knowledge in the whole field of medicine. The necessity for awareness and responsiveness on the part of those engaged in this work imparts an interest and a responsibility of very considerable degree. I assure you that the importance of this outlook is well recognized by the life assurance world.

#### Acknowledgements.

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#### References.

- Armstrong, D. B., Dublin, L. I., Wheatly, G. M., and Marks, H. H. (1951), "Obesity and its Relation to Health and Disease", *The Journal of the American Medical Association*, Volume CXLVII, 1951, page 1007; quoted in "Current Comment", *THE MEDICAL JOURNAL OF AUSTRALIA* (1952), Volume I, page 438.  
 Parkinson, J. (1951), "Cardiac Symptoms", *The Lancet*, Volume II, page 695.  
 ———, and Hartley, R. (1946), "Early Diagnosis of Rheumatic Valvular Disease in Recruits", *The British Heart Journal*, Volume VIII, page 212.

#### MEDICAL EXAMINATION OF RECRUITS FOR THE SERVICES.<sup>1</sup>

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THERE is a difference between the object of life assurance examination as presented by Brigadier Johnston and the purpose of an examination of a service recruit. A life assurance company requires an assessment of an applicant's ability to achieve the normal expectation of life, and so is vitally interested in the family history and occupation. The services, on the other hand, require to know the applicant's ability to perform the tasks of a service for a limited number of years in an occupation known to be hazardous. Mistakes in life assurance examination may be costly to a company, but receive no publicity. Errors in service medical examinations are costly to the whole community and receive wide and exaggerated publicity.

There is one common policy in both these medical examinations—the assurance company or the service, but not the individual, must be given the benefit of any doubt.

To appreciate fully any activity we should know something of its history and must know its purpose; but the history of medical standards for the recruitment of the services is vague.

When we remember the dreadful infantile mortality and morbidity up to one hundred years ago, we realize that any man surviving to early adult life in those early years must have been either very robust or an obvious cripple; and when we remember that most men lived in the country and were husky rural workers, we know that they were very tough. Consequently any young adult entering the services by wish or by compulsion was generally obviously fit.

However, long ago it was realized that to be a good bowman one had to be strong and reasonably tall, so on a functional basis the first standards required of soldiers were those of obvious strength and reasonable height, and these were not a medical matter.

Those of you who know Lady Butler's famous battle picture "Quatre Bras" will recall the formation of the hollow British square at Waterloo early last century, the front ranks kneeling with fixed bayonets, the rear flanks firing muskets above them. It is quite obvious that had the rear rank man not been reasonably tall he would possibly have shot away the shako or even the head of the man kneeling in front of him; again a standard of height was required as a functional consideration.

With the introduction of uniform in the seventeenth century, appearance came to be another factor in standards—a standard of form or appearance as well as function—and this has persisted in the army to some extent ever since.

During the nineteenth century a perfunctory medical examination by a staff surgeon was required of a recruit,

<sup>1</sup> Part of a symposium on standards of fitness held by the Victorian Branch of the British Medical Association on May 7, 1952.



but until about 100 years ago, if a member of the services died or was incapacitated it was just too bad—he received practically no recompense. But with the realization that once a man had been accepted into one of the services it was the responsibility of that service to look after him, and that if as the result of such service he became incapacitated he was entitled to financial assistance, things began to happen. It was required that steps should be taken to see that the man was fit on entering the service and that any incapacity acquired was genuine. In other words, every recruit had to be properly medically examined on entry and on injury or sickness. This came into being towards the end of last century and was the policy of World War I. In spite of this policy, 16,000 men were returned to Australia on medical grounds during World War I without seeing any active service. Translated into pounds, shillings and pence this cost and is still costing this country—that is, you and me—many millions of pounds. In World War II some thousands were similarly affected, and this still continues in relation to recruits for Korea.

So we see that there are two main considerations in determining standards in relation to service recruits: (i) the supply of good-looking men; (ii) the supply of men fit to carry out service tasks. Factors in form or appearance, such as height, chest measurement and weight, are not themselves a medical concern and are a medical consideration only if they have any bearing on function.

A service in its wisdom may and does prescribe a height standard, but this is not a medical matter. The determination of physical fitness for service tasks is a medical matter. By proper assessment of this fitness among recruits a service may be spared unnecessary loss of personnel, and the Treasury may be saved unnecessary pensions.

With the passing of time all three services have grown in complexity of function. In the army now at least nine other soldiers are required to keep one soldier in the front line. It follows that not nearly everyone in the army has to be fit to withstand the conditions of the front-line soldier.

With this realization came the importance of an assessment of function, as it was obvious that into such a complex organization as the army there could be posted men of certain varying degrees of fitness. The first attempt to meet this requirement was the development in Canada, during the last war, of the P.U.L.H.E.M.S. system, mnemonic for the various functions to be assessed. This was later adopted but modified in the United Kingdom, modified again in the United States of America, and again modified in New Zealand. By this system a numerical assessment of one to seven was made of the various functions. I have seen this system in use in these various countries, and I consider that it still leaves much to be desired. In Australia we have not adopted any such numerical assessment; but the three services have introduced a common instruction for the examination of recruits based entirely on functional considerations. Certain requirements peculiar to the Royal Australian Navy or the Royal Australian Air Force because of the functions required of their respective personnel are embodied in this instruction.

Broadly, we have set out to supply our services with personnel fit to carry out their various service tasks, and to avoid as far as possible personnel and financial waste; but this wastage will probably always continue as long as human nature is what it is at present.

The examination required is well within the ability of any competent honest medical practitioner, but will be more successful if it is carried out by the medical officer with a knowledge of service conditions. We all know of glaring errors in medical examination of recruits; most of these are the result of gross carelessness and are avoidable, and we hope they will be avoided in future.

This is a matter of great national importance, and few errors bring down more ridicule and resentment on the medical profession than bad medical examination.

We consider that the matter is of such importance that we believe final-year medical students should have adequate training in the examination and assessment of apparently

healthy people. Such training would be of value for assurance, industrial and service purposes, and would be a definite contribution to the elimination of the costly errors of the past.

I do not propose to present this instruction in detail, as it will soon be available in printed form; but that such an instruction for the three services has been produced is an indication of the goodwill and close collaboration that exist among the medical directorates of the services.

Consider a large room filled with applicants for the services. By applying the instructions concerning history and examination of each recruit we can immediately separate these applicants into two groups.

At least 20% will probably be unfit to enter any service. Of the remaining approximately 80%, all could serve in some capacity in the army, nearly all of them in the air force and most of them in the navy. These recruits would be classified as follows: Class I: fit for all duties, able to serve in any capacity; Class II: fit to serve, but because of some disability, to a limited and indicated extent; Class III: temporarily unfit because of some condition requiring treatment or further investigation, later to be up or down graded; Class IV: unfit for service.

Again, what happens to these various classes is not a medical but a service decision. For instance, one or other of the services may decide to accept only Class I recruits or may possibly decide to take certain recruits of Class III and raise their standard to Class II or to Class I. Our medical responsibility is with all care to classify the recruit and leave the further action to the service.

One important consideration to be borne in mind concerning medical examination of a service recruit is that while an army recruit enters the army generally, and is subsequently posted to a suitable duty, a navy recruit enters for a specific branch only—for example, (a) seaman, (b) sick-berth attendant—and remains in that branch throughout his service. An air force recruit enlists in a specific Royal Australian Air Force mustering—for example, (a) driver motor transport, (b) electrical fitter.

Finally, I would again stress the importance of care in a service medical examination, as this involves the reputation of the medical profession and the responsibility for the safeguarding of service efficiency and legitimate expenditure on pensions, both of which are costly to the safety and to the pockets of the whole community.

#### LIVER DAMAGE IN ASSOCIATION WITH THE CÆLIAC SYNDROME AND FIBROCYSTIC DISEASE OF THE PANCREAS.

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FATTY infiltration of the liver was recorded in cases of celiac disease collected from the literature by Andersen (1938), who described associated pancreatic lesions, designating them by the term fibrocystic disease, and suggesting the name celiac syndrome for the association of morbid entities. It has since been well recognized that cirrhosis of the liver is the end result in a number of such cases; and Andersen and Hodges (1946) discussed a type of biliary cirrhosis which they had observed. However, attention has been directed chiefly to the lesions in the pancreas and in the lungs, and the hepatic lesions have received only occasional mention, and then only for the purpose of directing attention to cirrhosis as an end result.

Studies of infective and other types of hepatitis and the development of the technique of needle biopsy of the liver have resulted in considerable additional knowledge of liver function and its morbid anatomy.

Dibble, McMichael and Sherlock (1934) studied epidemic hepatitis and showed the loss of lobular pattern, irregular cell staining, depletion of glycogen and the presence of inflammatory cells. The liver pattern as a whole was pre-

served, and recovery of the patients occurred in about one month, with restitution of the lobular pattern, disappearance of inflammatory cells, and some cellularity of the portal tracts. Arsenotherapy and mumps serum also produced hepatic necrosis—the former with extreme cell necrosis and infiltration by inflammatory cells, and the latter a combined focal and diffuse lesion. Glynn and Himsworth (1944), in experimentally produced acute hepatic necrosis, determined that both rapid and delayed necrosis represented an acute process, involving sudden death of hitherto healthy liver cells. Immediate necrosis was due to rapidly acting poisons, including bacterial toxins. In delayed necrosis there was no evidence of the intervention of a toxic agent, but there appeared to be deficiency of something requisite for normal liver metabolism, and a period of time was necessary for this deficiency to develop. Rapid necrosis involved every lobule, and to approximately the same extent, the distribution being in the form of zonal necrosis. Delayed necrosis due to faulty diet resulted in lack of uniformity in distribution of the process. There were alternating areas of apparently healthy liver cells amongst areas in which every cell was dead, or in which few were affected. The diffuse zonal appearance of acute rapid necrosis was conspicuously absent. The result of a single injection of a toxic agent in the rat (carbon tetrachloride) was followed by complete restoration of liver pattern; but repeated injections at short intervals culminated in diffuse cirrhosis. On the other hand, damage due to dietetic deficiency led to irregular scarring of the organ, except where lesions had been minimal. The picture was that of finely granular multilobular cirrhosis. These researches led to the classification of cirrhosis into toxipathic and trophopathic varieties. Glynn and Himsworth remarked that when it was possible to discuss the pathological processes involved in terms of intracellular chemistry, this distinction would not be a fundamental one, but served in the presence of incomplete knowledge as a useful aid.

Straub and Shaberg (1949) concluded from studies of cachexia that cirrhosis is a disease with a nutritional background, whereby dietetic deficiency may render the liver susceptible to hepatotoxic substances. Kwok-Kew Cheng (1949) studied experimentally the relationship between plasma proteins and hepatic disturbances, and concluded that the part played by the liver in protein synthesis was complicated and that extrahepatic factors probably intervened. Plasma proteins may be manufactured in widely separated organs and in cells with varying synthetic mechanisms. Suggested sources mentioned are the bone marrow and lymphoid tissue, as well as degenerated leucocytes and the disintegration of red blood corpuscles. Globulins may derive from cells of the intestinal tract, and cells in muscle and connective tissue may be a source.

Wainwright (1950) described hepatitis associated with infantile diarrhoea. Jaundice was present and the chief hepatic changes were periportal necrosis of the parenchymal cells of the liver, and infiltration by inflammatory cells, together with proliferation of bile canaliculi and the presence of fibroblasts. Fatty infiltration was also observed. One of the cases described by Wainwright presented the celiac syndrome, accompanied, however, by slight icterus. Earlier, in 1949, Schlesinger, Payne and Burnard found that jaundice was an uncommon but well recognized complication of gastro-enteritis in children. Liver damage was regarded as possibly a result of severe metabolic disturbances following acute states of nutritional failure. Severe and mild forms appeared to occur, and the two features observed were hepatic cell damage and necrosis with fatty infiltration. The suggestion presented itself that protein deprivation was chiefly responsible for the liver changes and that dehydration and loss of potassium played a part. When protein in the form of casein hydrolysate was supplied, excellent results were obtained clinically.

Although the question of disordered vitamin metabolism has figured largely in the literature in relation to both the celiac syndrome and fibrocystic disease of the pancreas, few studies have appeared on this topic in relation to the pathology of the liver changes found in the latter. The liver has been regarded as an important storehouse of

vitamin A, and this vitamin, it has been strongly argued, plays a part in the pancreatic and pulmonary pathology of fibrocystic disease of the pancreas. Deficiency of vitamin B in experimental liver necrosis was investigated by Calder (1942), who concluded that cirrhosis of the liver involved repeated cell necrosis and stages of repair, as the most important factor, if not the essential one. A dietary balance of choline and a thermolabile factor in the vitamin B complex had an influence on liver damage in the rat. The thermolabile factor was not vitamin B<sub>12</sub>, and the effects were not to be explained in terms of alteration in liver fat or glycogen content.

Scott (1950) presented a series of cases of fibrocystic disease of the pancreas in association with the celiac syndrome and directed attention to the pathology of the hepatic lesions. These lesions revealed a combination of fatty infiltration and hepatic cell necrosis, together with round-cell infiltration. The changes were not zonal in distribution, but all grades of parenchymal necrosis appeared. The lesions were regarded as probably non-specific, but nevertheless exhibiting characteristic features.

#### Discussion.

Himsworth (1950) has emphasized the fact of the large functional reserve of the liver, and its remarkable capacity for regeneration. An analogy is drawn between renal and hepatic disease processes; in both, acute lesions terminate in fibrosis and contraction of the organ. Great importance lies in the study of antecedent lesions, and attention should not be directed only to end results, such as cirrhosis, considered as an entity. Himsworth asserts that, in certain instances, the difference between massive and zonal necrosis is a matter of degree, and furthermore, anatomical factors may determine the ultimate consequences of injury. Fibrosis and regeneration are non-specific reactions to injury, and so present a composite picture. Swelling of parenchymal cells from varying causes impedes the intralobular circulation, and thus curtails the blood supply (at first to the most distant part of the lobule from the source of supply); the result is that form of necrosis known as centrilobular necrosis. Thus Himsworth claims that identical lesions in hepatic inflammation from many different causes may be explained. Massive necrosis is an extreme degree of centrilobular necrosis, and post-dietetic necrosis (the other type of massive necrosis) reveals an irregular pattern with alternate areas of dead cells and healthy parenchyma, having either sharp or irregular borderline demarcation. Apart from the effects of noxious agents on the hepatic cell, the part played by heavy infiltration by substances such as fat may in a milder way impede circulation in the lobule. However, Himsworth does not suggest that all hepatic degenerations are the sole result of circulatory disturbances of the intralobular blood flow. But he holds that such obstruction at least contributes to centrilobular parenchymal lesions.

The present writer has claimed that some toxic and infective factors play a major part in the hepatic and pancreatic lesions of the celiac syndrome, and together with malnutrition result in the irreversible tissue changes incident in the disorder. The distinctive feature presented in this material is massive necrosis of liver cells accompanied by cellular infiltration and pronounced fatty change. This combination is not to be found clearly defined in other examples of liver damage. The characteristic abnormalities known to be present in the celiac syndrome form an unusual combination, perhaps unique in any disease process.

There is evidence for the results of bowel infection on the hepatic parenchyma, and the changes brought about by dietary factors are well established. Infection in cases of fibrocystic disease is well authenticated, and the present writer has laid stress on the importance of pathological changes in the wall of the intestine. These abnormalities, which were clearly evident though minimal, have not been regarded as of great importance in the past. In addition vitamin deficiency is clearly a complicating factor in the celiac syndrome. Metabolism of protein and of carbohydrate is deranged. Such a combination, in which many

investigators have shown the upset consequent on these diverse morbid states, deserves close study from many angles. The incidence and mechanism of liver changes are clearly of vital importance, not only in the end results presented, but in the genesis of these abnormalities.

What certainly derives from a clear picture of hepatic disorder is that it may be mediated to a considerable degree by the circulatory theory put forward by Himsworth. The combination of fatty infiltration and the presence of inflammatory cells, together with necrosis of the parenchyma of the liver due to toxic events, would on this hypothesis account for the distinctive features of the hepatic damage. The derangement of protein metabolism also need not reside only in poor absorption; yet the hypothesis that such is the case, by implication at least, has resulted in elaborate estimations of amino-acid content of the blood being undertaken, and the results when obtained have been held to prove the fact of deficient absorption of the breakdown products of protein from the intestine. Very likely such is indeed the case, but the other factor—namely, the source of protein destruction in the organism—deserves to be considered.

In the paper previously referred to the present writer advanced the hypothesis, based on pathological material studied, that coeliac disease and fibrocystic disease of the pancreas formed the morbid entity embraced in the coeliac syndrome. This theory derives primarily from the incidence of gastro-enteritis resulting from dietetic and infective factors. It becomes possible on this basis to account for the hepatic lesions. Malnutrition due to the incidents mentioned will account for fatty infiltration of the liver; this postulate now appears to be supported by direct evidence. If the bowel derangement is severe or is repeated with intervals of freedom from upset (which frequently occurs in the coeliac syndrome and is one of its outstanding features), fatty infiltration of the liver may likewise vary in incidence and severity from time to time. Necrosis of liver cells, which has been shown to result from gastro-enteritis, together with the fatty changes due to dietary disorder and malnutrition, could well result in defective intralobular circulation in the liver. In this setting a "vicious circle" is readily set up, for the more the process outlined occurred, particularly in many repeated incidents, the more some residual damage would be likely to remain and thus perpetuate the pathological process. The morbid state is likely, at some stage of its life history, to interfere seriously with protein metabolism in the liver, and this derangement will occur apart from absorptive defects in reference to protein metabolism, which is the subject of study by some workers who neglect the part played by liver damage. It seems evident that the amino-acid content of the blood will be lowered as a consequence of both factors or defects, and not be due only to poor absorption from the intestine. Likewise carbohydrate metabolism will be affected, and storage of vitamin A, together with deficient absorption respectively. If this latter supposition holds, then pulmonary complications incident in fibrocystic disease may not be unrelated to hepatic function, when the latter becomes seriously affected.

The significance of the cellular element, which occurs so characteristically along with necrosis and fatty infiltration, although not so readily explained, offers a further difficulty to intralobular circulation in the liver. The presence of cellular elements may be the direct result of infection or be associated with necrosis of parenchymal tissue. Probably both factors are significant.

The absence of jaundice in the coeliac syndrome is surprising when the extent of liver destruction which may occur is considered. One reported case of gastro-enteritis, referred to earlier in this paper, presented both jaundice and features of the coeliac syndrome. Such instances are rare.

The vital importance of the sequence of the pathological changes in the liver and their relation to clinical sequences have been underlined by Himsworth. Such a conception is of particular significance and fundamental importance in the coeliac syndrome, with its variations in severity and frequent clinical remissions. The initial lesions of each

sequence, on this hypothesis, can be ascertained in the coeliac syndrome only as further studies uncover the natural history of the disorder and explain the progressive and irreversible tissue changes which occur, and which cannot possibly be based on genetic factors to the exclusion of other incidents both metabolic and environmental.

#### References.

- Andersen, D. H. (1938), "Cystic Fibrosis of the Pancreas and its Relation to Coeliac Disease", *American Journal of Diseases of Children*, Volume LVI, page 344.
- , and Hodges, R. G. (1946), "Coeliac Syndrome: Genetics of Cystic Fibrosis of the Pancreas with a Consideration of Etiology", *American Journal of Diseases of Children*, Volume LXXII, page 62.
- Calder, R. M. (1942), "The Influence of Vitamin B Deficiency on Experimental Liver Necrosis", *The Journal of Pathology and Bacteriology*, Volume LIV, page 355.
- Dibble, J. H., McMichael, J., and Sherlock, S. P. V. (1943), "Pathology of Acute Hepatitis. Aspiration Biopsy Studies of Epidemic Arsenotherapy and Serum Jaundice", *The Lancet*, Volume II, page 402.
- Glynn, J. E., and Himsworth, H. P. (1944), "Massive Acute Necrosis of the Liver: Its Significance and Experimental Production", *The Journal of Pathology and Bacteriology*, Volume LVI, page 297.
- Himsworth, H. P. (1950), "Lectures on the Liver and its Diseases", Second Edition.
- Kwok-Kew Cheng (1949), "An Experimental Study of the Relationship between Plasma Proteins and Liver Disturbance", *The Journal of Pathology and Bacteriology*, Volume LXI, page 23.
- Schlesinger, B., Payne, W. W., and Burnard, E. D. (1949), "Liver Damage in Gastro-enteritis", *A.M.A. Archives of Disease in Childhood*, Volume XXIV, page 15.
- Scott, G. E. M. (1950), "Coeliac Disease and the Coeliac Syndrome", *THE MEDICAL JOURNAL OF AUSTRALIA*, Volume I, page 37.
- Straub, M., and Schaberg, A. (1949), "Hepatic Changes in Extremely Cachectic Indonesians", *The Journal of Pathology and Bacteriology*, Volume LXI, page 494.
- Wainwright, J. (1950), "Hepatitis Associated with Infantile Diarrhoea", *A.M.A. Archives of Disease in Childhood*, Volume XXV, page 286.

### Reports of Cases.

#### ASCITES AND HYDROTHORAX DUE TO INVASION OF THE OVARIES BY SECONDARY MALIGNANT DISEASE.

By E. LLOYD-WILLIAMS,  
Sydney.

I was interested to read Dr. R. N. Crookston's excellent report of a case of Meigs's syndrome in *THE MEDICAL JOURNAL OF AUSTRALIA* of December 1, 1951. I had met a somewhat similar case in my practice during 1950 and had been considering writing about it for some time.

#### Clinical Record.

My patient I had known for two and a half years, she being the wife of a friend of mine and aged thirty-five years. She had two children, aged sixteen and three years respectively. She appeared in perfect health. During December, 1949, whilst in Melbourne, she had a "check-up" by her family doctor, who gave her a clean bill of health.

I first examined her on May 26, 1950. She complained of pain in the right iliac fossa and of some constipation, which castor oil had failed to relieve. On examination she was found to be very tender over McBurney's point, and to have a slightly elevated temperature. On pelvic examination the uterus was tender and there appeared to be some hardening in the pouch of Douglas. When she stood erect, she had a tendency to tilt the pelvis to the right as if guarding a painful mass in the right iliac fossa. The abdomen was slightly distended. Other systems appeared normal. I decided to perform an appendicectomy the next day (May 27) and to explore a little.



I removed an inflamed appendix, but noticed more free fluid present than the state of the appendix warranted. The terminal portion (four inches) of the ileum was changed in colour and similar to that found in paralytic ileus. There was no hardening. The surface was slightly gummy and the coils of intestine seemed loosely gummed together. The patient was not taking the anaesthetic well, so I postponed further investigation and closed the abdomen. I warned the patient the next day that I was doubtful about the state of the ileum and that she might require further investigation. She made an excellent recovery and was sent home on the tenth day, feeling well. Six weeks later the abdomen began to swell again, but to a much greater extent than previously. I drew fluid from the abdomen with a cannula, and as I now suspected a tuberculous condition of the bowels, I had the fluid examined by a pathologist, Dr. A. E. Finckh. His report (dated July 12, 1950) was as follows:

Examination of a wet film from the centrifuged deposit of the fluid revealed profuse polymorphonuclear leucocytes, a few lymphocytes, occasional red blood cells and a few large mononuclear leucocytes. No organisms were seen after Gram staining, and Ziehl-Neelsen staining revealed no acid-fast bacilli.

The patient was comfortable after the tapping of the abdomen, but next day contracted influenza, which lasted for five days.

In further search of evidence of tuberculosis, I referred the patient to the Anti-Tuberculosis Association Clinic. Here she was radiologically examined, and on July 11, 1950, 10 millilitres of straw-coloured fluid were aspirated from the right pleural cavity. The fluid was examined for tubercle bacilli and was found to be free from them. Dr. H. Wilson, the Medical Director, kindly telephoned me and said that the condition resembled Meigs's syndrome; he lent me a copy of an American journal, in which was a report of a case on which a lecture had been given by a chest physician to a group of gynaecologists. For this I was very grateful, as I had never heard of Meigs's syndrome before. The patient's abdomen was now an enormous size owing to ascites—much larger than a full-time pregnancy.

As the description of Meigs's syndrome fitted the case perfectly, I decided to operate and remove the "innocent tumour".

On the eve of the operation (July 27) I tapped the abdomen again and removed roughly five gallons of fluid; the last half-pint of fluid to be withdrawn suddenly appeared brightly blood-stained. The right side of the chest was dull again owing to hydrothorax, but the patient asked me not to aspirate this till she was anaesthetized the next day, as she considered it very painful. I did not aspirate the chest. Some hardness could be felt in the abdomen just below the umbilicus when the abdomen was lax.

At operation, on July 28, I found the intestines to be in a matted mass, covered with fungating necrotic growths. On examination of the uterus, it was found to be fixed owing to thickening of the broad ligaments. I was surprised to see normal sized ovaries, with gaping rents in their superior surfaces. They had apparently necrosed through where bowel had been resting on them. I simply picked off some of the necrotic mass for examination, and also cut off the diseased portions of the ovaries and stitched the rents. The abdomen was then closed. I did not aspirate the right side of the chest. The patient appeared well after the operation; the ascites did not return, and the fluid disappeared from the right pleural cavity. Her husband was informed of the hopelessness of the condition, and she was sent home after three weeks. The pathologist, Dr. T. D. Orban, reported that the necrotic growths were adenocarcinomatous. The portion of the ovary examined was found to be "secondarily invaded by adenocarcinoma—with the primary most likely in the large bowel".

I was called to see the patient again. This time she had obstruction of the bowel, and I established a left-

sided colostomy opening on August 29. She died three months later, quite mentally deranged owing to secondary deposits in the brain. The ascites and hydrothorax did not return at any time before her death.

#### Comment.

I have been wondering since whether this was, or was not, a case of Meigs's syndrome, and whether Meigs's syndrome could be caused by invasion of an innocent ovary by cancer.

I have consulted several gynaecologists, including Dr. Alan Grant, who kindly looked up literature on the subject. He wrote to me as follows:

It appears that all pathologists agree in defining Meigs's Syndrome as a benign ovarian tumour plus ascites plus hydrothorax. Even uterine fibroids with ascites and hydrothorax do not constitute true Meigs's Syndrome. Malignant ovarian lesions and the same two associated collections of fluid are not Meigs's Syndrome. The clinical importance of Meigs's Syndrome is the fact that a lesion which resembles malignant disease of the ovary turns out to be benign.

Dr. Grant also quoted from "Obstetrical and Gynecological Pathology", by Faulkner and Douglas, as follows:

The importance of Meigs's Syndrome lies in the fact that a patient with a very benign and easily removable ovarian tumour may present the earmarks of a hopelessly malignant growth.

I myself think, from my observations in this case (the only one I have seen of this very rare type), that ascites in large volume and hydrothorax can be produced by secondary invasion of an innocent ovary by malignant disease. The patient can be relieved of the dreadful discomfort caused by the huge volumes of fluid by the removal of the diseased portion of the ovary. Apparently we can diagnose a condition as Meigs's syndrome with certainty only after the pathologist's report has been obtained.

## Reviews.

**Diseases of the Nose, Throat and Ear: A Handbook for Students and Practitioners.** By I. Simpson Hall, M.B., Ch.B., F.R.C.P.E., F.R.C.S.E. Fifth Edition, 1952. Edinburgh and London: E. and S. Livingstone, Limited. 7½" x 5½", pp. 476, with 82 illustrations, eight in colour. Price: 18s.

THAT I. Simpson Hall's compact text "Diseases of the Nose, Throat and Ear" has now reached its fifth edition is evidence of the very useful place filled by this work as a handbook for students and practitioners. The text and general format remain much the same as in the previous edition. Developments in chemotherapy and antibiotics have been taken into account in the plan of treatment of the various infective conditions. Occasionally, however, the routine to be followed has been allowed to become a little confused, as, for instance, in the treatment of acute otitis media. It is stated that chemotherapy should be discontinued if resolution of inflammation fails to occur or should pus formation be suspected. The better instruction surely would be that these events stress the need for surgical drainage by myringotomy, while chemotherapy should be intensified or perhaps modified to cope with variations in bacterial sensitivity.

Although there are some surgeons of long experience who still employ the guillotine for tonsillectomy, not many will agree that the purpose of the guillotine is merely to hold the tonsil while the organ is stripped from its bed by blunt finger dissection. The reverse guillotine method of Phylbus surely is the appropriate second stage of this method of operating. The adenoid operation might well be more fully described and calls for some illustration, as it is a procedure attempted by most, but very often inadequately performed. It is to be regretted that the short section on deaf-mutism fails to include maternal rubella during the early months of pregnancy and the kernicterus of Rh incompatibility as important causes of cochlear degeneration or maldevelopment. If these conditions are to be correctly recognized and the sorely afflicted little children are to be appropriately helped and educated, the general practitioner should be made aware of the greatly increased knowledge of what causes

these afflictions, for he may be able at times to adopt measures to prevent such disastrous sequelae. It is a pity that training in lip-reading is the only method of education referred to. Every practitioner should know that many of these children are only partly deaf and can be taught to speak through the use of hearing aids and special schooling.

The author is to be congratulated on his efforts, for this is a most useful book which has been kept up to date. It contains all that the student or busy general practitioner is likely to require in preparation for examinations or for speedy reference.

**The 1951 Year Book of Physical Medicine and Rehabilitation (December, 1950-January, 1952).** Edited by Frank H. Krusen, M.D., and associate editors Earl C. Elkins, M.D., and George G. Deaver, M.D.; 1952. Chicago: The Year Book Publishers, Incorporated. 8" x 5½", pp. 382, with 160 illustrations. Price: \$5.50.

In an introduction to "The 1951 Year Book of Physical Medicine and Rehabilitation" the editor, Frank H. Krusen, surveys the subject of the book in broad terms and refers to the principal developments during the preceeding year. Then follows a special article, of an essentially practical character, on *spina bifida*, in which George D. Deaver, Dorothy Buck and Jean McCarthy discuss in detail how the paraplegic child with *spina bifida* may get the most out of life. The abstracted material, which is presented with a minimum amount of editorial comment, is divided into sections on general aspects of physical medicine and rehabilitation, physiological and anatomical considerations, diagnostic applications, electromyography, devices and mechanical procedures, exercise, artificial respiration, heat and cold therapy, hydrotherapy, medical electricity, short-wave and microwave diathermy, ultrasonics in medicine, poliomyelitis, cerebral palsy, amputees, orthopaedic conditions, general medical conditions, neurological and psychiatric conditions, obstetrics, urology, geriatric conditions and teaching. General medical conditions include arthritis, respiratory disease, peripheral vascular disease, cold injuries and diseases of the eye. Neurological and psychiatric conditions include hemiplegia, paraplegia, multiple sclerosis, aphasia and diseases of the peripheral nerves. A wide range of literature has been covered to gather the material, and the volume, which is as usual most attractively produced, will be useful to all who wish to keep up with current ideas in physical medicine and rehabilitation.

### Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Hale-White's Materia Medica, Pharmacology and Therapeutics", by A. H. Douthwaite, M.D., F.R.C.P. (London); Twenty-Ninth Edition; 1952. 7½" x 5", pp. 520. Price: 20s.

The book has been practically rewritten since preparation of the previous edition in 1949.

"Fibre Systems of the Brain and Spinal Cord", by M. K. Wright, M.Sc., M.B., B.Ch.; 1952. Johannesburg: Witwatersrand University Press. 11" x 8", pp. 103, with 53 illustrations.

Written with "the single purpose of teaching the principal fibre pathways of the central nervous system".

"Shock and Circulatory Homeostasis: Transactions of the First Conference, October 22-23, 1951, New York", edited by Harold D. Green, M.D.; 1952. New York: Josiah Macy Junior Foundation. 9½" x 6", pp. 246, with 21 text figures. Price: \$3.50.

Contains papers and discussions on humoral vasoactive and other metabolic derangements in shock, the nervous system in shock, acute and chronic hypotension after hemorrhage in man, the infectious element in shock, and the therapeutic implications of current concepts of shock.

"Correlative Neuroanatomy and Functional Neurology", by Joseph J. McDonald, M.S., M.Sc.D., M.D., and Joseph G. Chusid, A.B., M.D.; Sixth Edition; 1952. Los Altos, California: University Medical Publishers. 10½" x 7½", pp. 264, with 177 illustrations. Price: \$4.00.

The authors aim to present simply and clearly, for the beginner in neurology, those features of anatomy and physiology of the nervous system which bear upon the problems of clinical neurology.

"Bedside Diagnosis", by Charles Seward, M.D., F.R.C.P. (Edin.), with a foreword by Henry Cohen, M.D., F.R.C.P.; Second Edition; 1952. Edinburgh and London: E. and S. Livingstone, Limited. 7½" x 5", pp. 396. Price: 17s. 6d.

The previous edition was published in 1949.

"Ophthalmic Plastic Surgery", by Sidney A. Fox, M.S. (Ophth.), M.D., F.A.C.S.; 1952. New York: Grune and Stratton. 10½" x 7", pp. 304, with 133 illustrations. Price: \$15.00.

Intended for the practising ophthalmologist, not the surgical specialist.

"The Esophagus and its Diseases", by Eddy D. Palmer, M.D., F.A.C.P.; 1952. New York: Paul B. Hoeber, Incorporated. 9½" x 6½", pp. 566, with 95 illustrations. Price: \$15.00.

"An attempt is made to discuss the esophagus and its diseases in terms of their morphologic and physiologic behaviour."

"The National Health Service in Great Britain: An Historical and Descriptive Study", by James Stirling Ross; 1952. London: Geoffrey Cumberlege, Oxford University Press. Melbourne: Oxford University Press. 9" x 6", pp. 412, with two maps. Price: 50s.

Intended to be "a comprehensive account and objective study of the Service".

"The 1952 Year Book of Medicine (May, 1951-May, 1952)", edited by Paul B. Beeson, M.D., J. Burns Amberson, M.D., William B. Castle, M.D., Tinsley R. Harrison, M.D., George B. Eusterman, M.D., and Robert H. Williams, M.D.; 1952. Chicago: The Year Book Publishers. 8" x 5½", pp. 736, with 122 illustrations. Price: \$6.00.

One of the Practical Medicine Series of Year Books.

"Fœtal and Neonatal Pathology", by J. Edgar Morison, M.D., B.Sc.; 1952. London: Butterworth and Company (Publishers), Limited. Sydney: Butterworth and Company (Australia), Limited. 10" x 7", pp. 378, with 59 illustrations. Price: 68s. 6d.

An attempt to provide a basis for the study of disease in the fetus and newborn infant.

"George Bass, 1771-1803: His Discoveries, Romantic Life and Tragic Disappearance", by Keith Macrae Bowden; 1952. Melbourne: Geoffrey Cumberlege, Oxford University Press. 9" x 6", pp. 182, with 12 illustrations. Price: 21s.

The result of an exhaustive study of the scanty materials available on a distinguished naval surgeon and explorer.

"Ciba Foundation Colloquia on Endocrinology. Volume IV: Anterior Pituitary Secretion and Hormonal Influences in Water Metabolism", edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch., assisted by Margaret P. Cameron, M.A., A.B.L.S.; 1952. London: J. and A. Churchill, Limited. 8" x 5½", pp. 614, with 139 illustrations. Price: 45s.

Papers and following discussions.

"A Short Practice of Midwifery for Nurses (Jellott)", by J. Bernard Dawson, K.B.E., M.D., B.S. (London), M.D. (Adelaide), F.R.C.S. (England), F.R.C.O.G., F.R.A.C.S.; Fifteenth Edition; 1952. London: J. and A. Churchill, Limited. 7½" x 5", pp. 464, with five plates and 188 text figures. Price: 16s.

The previous edition was published in 1948.

"The Emergency Medical Services", by C. L. Dunn, C.I.E., I.M.S. (ret.); 1952. London: Her Majesty's Stationery Office. Volume I: England and Wales. 10" x 6½", pp. 476, with 41 plates and 10 text figures. Price: 50s.

The first of two volumes on the emergency medical services, prepared as part of the British Medical History of the Second World War.

"Indigenous Medicinal Specialties", by U. B. Narayanrao, with an introduction by K. S. Mhaskar, M.A., M.D., B.Sc., D.P.H., D.T.M. and H.; First Edition; 1952. Bombay: Medical Digest. 6½" x 5", pp. 334.

Ayurvedic therapeutics.

"The Rotunda Text-Book of Midwifery for Nurses", edited by O'Donel Browne, M.B., M.A.O., M.A., Litt.D., F.R.C.P.I., F.R.C.O.G.; 1952. Bristol: John Wright and Sons, Limited. 7½" x 5", pp. 308, with 135 text figures. Price: 21s.

This book was completed before the author's death.

## The Medical Journal of Australia

SATURDAY, JANUARY 10, 1953.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: surname of author, initials of author, year, full title of article, name of journal without abbreviation, volume, number of first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

### RESEARCH IN INFECTIOUS HEPATITIS.

It is interesting to trace the growth of knowledge about infectious hepatitis, in particular over the last generation. Unfortunately, a false hypothesis was associated with the name and related assumptions concerning the so-called "catarrhal jaundice", and this put back the understanding of acute liver disease considerably. The impact of biochemistry set research moving again, and tests of liver efficiency occupied many investigators, who extended knowledge farther back to the causal factors, for it was evident then that the theoretical differences in types of jaundice could be related to parenchymatous disease of the liver. Virus research has also played its part more recently, and now, as has happened before in the history of medical research, microscopic studies have again come into their own from the use of a simple but valuable technique, needle biopsy of the liver. During the last ten years this method has been brought into relation with biochemical assays of the functions of the liver, with a great sharpening of interest in the clinical phenomenon of jaundice. Finally, further light has been shed on the sequels of infectious hepatitis, and the factors concerning its prognosis, one of which appears to be age. The researches carried out in Australia on this subject have added considerably to knowledge, particularly the work done in the Clinical Research Unit of the Walter and Eliza Hall Institute of Medical Research and the Royal Melbourne Hospital. The latest of these contributions has been published in this journal recently by Eric G. Saint,<sup>1</sup> and it is an appropriate time to refer to this, and to another monograph written by Gunnar Welin in Sweden.<sup>2</sup>

Saint's article deals with the effects of infectious hepatitis in older age groups, and is based on the study of 20 patients from a series of 91 cases of infectious hepatitis.

His study not only describes the natural history of the disease in persons over forty years of age, but also points out that biochemical tests are of definite value in the differentiation of jaundice due to infection and that due to obstruction. He has noted particularly the occurrence of pain in certain subjects of infectious jaundice, a feature which demanded adequate investigation before any surgical measures were carried out. As this paper is so readily accessible no further reference need be made to it here, but it is interesting to compare the parallel study of Welin. This investigator had noted the difficulty in establishing a correct diagnosis in cases of jaundice, and was led to adopt the aspiration biopsy technique of Iverson and Roholm in 1939. For the last ten years he has studied the liver by biopsy, and has extended this work to the study of cirrhosis, as well as adopting routine biochemical methods of determining the status of liver function. He has had no trouble with the technical aspect of the work, and has always preceded the biopsy with tests of the prothrombin time and administration of water-soluble vitamin K. Out of 400 biopsies only one death occurred, and that in a patient who had carcinoma of the biliary ducts and severe anaemia requiring blood transfusions. Eighty-eight biopsies were performed on 71 patients; 50 of these were performed during an attack of jaundice, and 32 on patients with post-inoculation jaundice, a fact of some interest when we consider the frequent severity of this type of hepatitis. In several of the cases of this kind Welin noted transitional cellular changes probably due to early cirrhosis of the liver. He describes fully the histological features of the liver structure in acute hepatitis, and sums these up by pointing out that parenchymal injury is the chief change found, and that all degrees of regressive signs may be seen in the parenchymal cells in viral hepatitis. Degeneration of the epithelium not only is observed during the whole course, but also is constant during the pre-icteric stage. Inflammatory cellular changes are also a feature, with an invasion of mononuclear cells. These cells are characteristically found in the periportal areas. Proliferation of connective tissue has been described by a number of workers in the field, not only as a forerunner of cirrhosis, but in more transitory guise. Saint quotes one striking case in which nodular hyperplasia and fibrosis appeared after the onset of jaundice, but eventually disappeared, leaving an almost normal liver architecture. It is evident that there is still room for more work on this very important matter of prognosis. Welin traverses the liver function tests, including the estimation of serum bilirubin, the galactose test, the blood citric acid test, estimation of the serum proteins, the thymol turbidity test and the serum alkaline phosphatase test. He points out, as others have done, that a simple clinical estimate of the depth of jaundice can be most misleading, as this is not of necessity related to the degree of severity of infection. He refers to types of abnormal course, which may be of the nature of unusually swift recovery, or others which lag or recur and may lead on to cirrhotic changes. Persistent subicterus is sometimes observed, too, but Welin could not relate this to any special prognosis. He gives a long section to the consideration of cirrhosis in relation to the findings of biopsy, and illustrates this with case histories. The special value of this is its help in the early diagnosis, for if abdominal symptoms of unusual type, such

<sup>1</sup> THE MEDICAL JOURNAL OF AUSTRALIA, November 1, 1952.

<sup>2</sup> Acta medica Scandinavica, Supplementum 268, 1952.



as troublesome pain, have been a feature of the illness, the surgeon may easily be tempted to adopt measures which may be contraindicated by further investigation. Welin presents his findings in the biochemical tests, but, like other writers, prefers to select tests which cover the most important liver functions, as estimated by the level of the serum bilirubin, the galactose test, the tests depending on protein levels in the blood, and perhaps the phosphatase activity. Probably the question of correlation of biopsy with chemical tests is best left to an ideal collaboration between the clinician and the laboratory workers without undue reliance on one or two tests only. It is impossible to condense the evidence set out in a long monograph, but it may be said that biochemical tests should give considerable strength to a diagnosis which must decide between infection and obstruction, and if more information is necessary the performance of needle biopsy is in skilled hands a safe and simple procedure which will give first-hand information on what is happening in the parenchyma of the liver. In conclusion, we may remember that infectious hepatitis is a disease needing more caution in older subjects, and it should be watched well into the period of convalescence.

### Current Comment.

#### STREPTOMYCIN THERAPY FOR BONE AND JOINT TUBERCULOSIS.

ALTHOUGH streptomycin is generally accepted as an adjunct in the treatment of bone and joint tuberculosis, caution tends to persist in its application. This is readily understood in the light of the acknowledged disadvantages of streptomycin—its toxicity and the rapid development of resistance by organisms; though care with dosage and discriminating use, especially in association with para-aminosalicylic acid, overcome these difficulties to a large extent. Another factor is a degree of uncertainty still existing on the necessity or otherwise for radical surgical treatment when streptomycin is used. Two recent articles<sup>1</sup> are worthy of careful study, particularly for the light they throw on this question. One is an account by Mayer S. Deroy and Harry Fisher of their treatment between October, 1946, and April, 1950, of 52 patients suffering from tuberculous disease of bone. The duration of lesions varied from apparently recent acute infections to chronic lesions of long standing. The age of the patients ranged from one to seventy-two years. Deroy and Fisher do not believe that all patients with tuberculous involvement of bone should be immediately subjected to radical surgery. In many cases when the patient is first seen the lesion is in a quiescent or even healing stage and the disease can be arrested by conservative means without prolonged periods of complete recumbency. They consider that all patients with either progressive advancing tuberculous bone lesions or abscess formation, as evidenced by clinical or X-ray findings or sequestrum formation, should be subjected to surgical intervention. The keynote of successful treatment, in their view, is the adequate drainage of the tuberculous lesion coupled with streptomycin therapy. They have found that conversion of an abscess and its bone lesion to a freely draining sinus is a cardinal principle in treatment and is essential before streptomycin can be used successfully. The area from the bone lesion to the skin is packed snugly with plain or iodoform gauze. This is left for twelve to fourteen days and then is removed altogether. The sinus is left to close spontaneously, and only superficial dressings are applied. Streptomycin therapy, one gramme per day

given intramuscularly, is started on the day of operation and is continued for a period half as long as the time required for closure of the sinus. Splinting for comparatively short periods may be used for control of pain, until the packing has been removed and the patient is comfortable. When good joint movement in weight-bearing joints has been attained the patient is allowed light weight-bearing on crutches. Deroy and Fisher have found that after adequate surgical drainage and streptomycin therapy destruction from bone and joint tuberculosis ceases, and skiagrams show evidence of recalcification and apparent regeneration of bone. There has been no tendency towards reactivation of the lesion clinically or symptomatically. In closed bone lesions the use of streptomycin alone has failed to control the progress of the disease in most cases. In the surgically produced sinuses, subsidence of drainage and closure in periods of time varying from three to sixteen weeks have invariably taken place. Although the surgically treated lesions will heal clinically, new lesions in other parts of the body may develop and progress, despite administration of streptomycin. While lesions adequately drained surgically are healing, preexisting sinuses from other lesions may fail to close. The tendency for bone regeneration to occur in children, with reestablishment of an apparently normal epiphyseal plate and no disturbance in the rate of growth, has been particularly evident and gratifying. A good functional range of movement in peripheral joints has been retained in almost all cases, with little or no residual pain. In those few cases in which surgical arthrodesis was performed fusion tended to occur rapidly. A good functional range of movement has been the usual end result, even when there was X-ray evidence of extensive destruction of the joint. The factor of secondary infection has apparently been of no consequence in the arrest and healing of these lesions. Results were excellent in 37 cases and good in 13. There were two deaths.

In the other article, R. I. Harris, H. S. Coulthard and F. P. Dewar assess the effect of streptomycin (in a dosage of one gramme per day), with and without para-aminosalicylic acid (ten grammes per day), in the course of treating 118 tuberculous lesions of bones and joints in 1947, 1948, 1949, and 1950. In 1950 para-aminosalicylic acid was given concurrently in all cases except for the few patients who could not tolerate the drug; the daily dose ranged from two to ten grammes, the usual dose being ten grammes divided into three doses. The total dosage of streptomycin most commonly used was 60 or 90 grammes, but in a few cases 180 grammes were given for special reasons. Included also are two patients treated in 1947 with a total dosage of 350 and 360 grammes. Although it was necessary, in a number of cases, to change over to dihydrostreptomycin because of vestibular or auditory disturbances, in only two of the 118 cases was it necessary to curtail the originally planned course of streptomycin. Only four cases of permanent damage were experienced: three patients in the meningitis group became deaf, and one patient, treated in 1947 with 360 grammes of streptomycin, became ataxic. The best results were obtained when streptomycin treatment was associated with excision of a tuberculous focus. In some instances pyogenic infection had previously been present and controlled by the use of suitable antibacterial agents. Of 35 operations performed through a tuberculous field, primary healing was obtained in 32 and delayed healing in three. There were no complete failures. When persistent tuberculous sinuses from bone were treated by means of streptomycin, but not by excision, the results were nearly as good, but slower in appearing. Of 14 uncontaminated sinuses, only six closed permanently during treatment; but five more closed after one recurrence, with or without more streptomycin, two closed after excision, and one closed spontaneously ten months after termination of streptomycin therapy. When the added factor of pyogenic bacteria had been faced in 18 cases, additional antibiotics were required, but the results were about the same. There were 11 permanent closures during treatment, four subsequent closures following one recurrence, and three partial failures. Some of these sinuses which were so difficult to close had been draining for between fourteen and twenty-three years, but

<sup>1</sup> *The Journal of Bone and Joint Surgery*, April, 1952.

29 out of 32 are now healed. It was found that in the treatment of non-discharging bone lesions the results attributable to streptomycin in 34 cases appeared to be good in 20 cases and disappointing in 14 cases when judged by clinical and X-ray findings. When bone and joint lesions were complicated by miliary tuberculosis of the lungs (five cases), treatment was modified by increasing the course of streptomycin to 180 grammes spread over six months or more, as well as by the use of intrathecal injections. The results were excellent, as the pulmonary lesions completely disappeared and it was possible ultimately to carry out bone grafts on two spine lesions. In two hip lesions the condition appears to have been arrested, in one with no bone destruction. One synovial lesion of the knee has been aborted. Harris, Coulthard and Dewar point out that the surprising results obtained in the three cases last mentioned may indicate that early treatment of bone lesions with adequate doses of streptomycin and para-aminosalicylic acid for a prolonged period of time offers real hope of cure of tuberculosis of bones and joints. In these cases the miliary tuberculosis of the lung necessitated prolonged administration of streptomycin and para-aminosalicylic acid. Sensitivity tests were carried out on all lesions containing tubercle bacilli, modified Herrold's medium being used. No bacilli were available in 33% of cases, the lesions became non-bacillary during treatment in 34.7%, and final determinations of sensitivity have been made in only 30.5%. Of this last group, 72% of lesions yielded bacilli sensitive to streptomycin throughout treatment, 14% yielded bacilli which became resistant, and 14% started with resistant bacilli and continued to yield them throughout treatment. Resistant forms of bacilli did not emerge in any patient treated concurrently with both streptomycin and para-aminosalicylic acid, provided the tubercle bacilli were sensitive to begin with, para-aminosalicylic acid was used from the commencement of streptomycin treatment, and the dose of para-aminosalicylic acid was not less than ten grammes daily. Harris, Coulthard and Dewar consider that there is no doubt that the use of streptomycin and para-aminosalicylic acid has reduced morbidity and increased the prospects of successful treatment in the field of bone and joint tuberculosis. It is of greatest value in promoting primary healing of a closed wound after excision of a tuberculous sinus and its focus of origin.

#### PULMONARY COMPLICATIONS OF INFLUENZA.

THE importance of pulmonary complications in influenza needs no emphasis, but since the pandemic of a generation ago not very much help has been given to the clinician who wishes to have some accurate way of determining not only the presence, but also the cause of infiltrations in the lung. After the first World War the tendency was to think in terms of aetiology; now the accent is rather on therapy, although there is some doubt whether we are any farther along the way of individual treatment than formerly. However, it is important to know the features of epidemics in different parts of the world, so that every study of an epidemic profits by the methods used and adds perhaps to their practical nature. Two medical officers of the United States Navy, Lieutenant J. M. Scher and Commander E. Jaruszewski, have compiled a report on an epidemic of virus A influenza as it was seen in a naval hospital in Philadelphia, and in this studied chiefly the pulmonary complications.<sup>1</sup> During the winter of 1951, 82 young adults were under observation. The usual bacteriological tests were carried out, the lungs were radiologically examined, and throat washings from 13 of the patients who were seen early were examined for influenza virus after the standard amniotic methods. The latter tests showed that a strain of A' virus could be isolated from some, and examination of the blood serum demonstrated a rise in the specific antibody titre of the A and A' types of virus. Investigations were also made into cold agglutinins and heterophile antibodies. The diagnosis of infection by

influenza virus was accepted when there was serological evidence of recent infection by influenza, when the clinical course was compatible with such infection and when there was no evidence of the presence of bacterial pathogens. The authors tabulate the observed symptoms in all the patients, distinguishing those who were shown to have pulmonary infiltrations from those who did not have them. Bacteriological examination showed that *Staphylococcus aureus* was demonstrable in a number of the later observed cases, but the other likely pathogens were not present in significant numbers. Carrying out such studies in a naval hospital was of distinct value, for numbers of patients were admitted without or before the development of any evidence of pulmonary complications, and thus were investigated at an early date. Summation of the results showed that 76 cases satisfied the criteria adopted for the diagnosis of infection by influenza virus A', and in 24 of these, that is, about one-third, infiltration of one or both lungs was demonstrated radiologically and clinically. The possibility of these lesions being due to agents other than the influenza virus was examined, but no convincing evidence was obtained that such agents were of aetiological importance. It should be noted that the cold-agglutination test did not reveal any significant evidence that assisted the diagnosis. In this series there were no deaths, and it must be borne in mind that the group investigated was a selected one, and the clinical picture often seen in older age groups was not seen among these healthy and vigorous young men.

The series may with some interest be compared with a study of an influenza epidemic in Sheffield in 1949 made by D. A. J. Tyrrell.<sup>2</sup> Tyrrell points out that investigations made in 1938 showed that the commonest pulmonary complication of influenza was bronchiolitis, and that in all cases of pneumonia and some of bronchitis bacterial agents were important. In this study one observer made careful clinical observations on all patients under review and correlated his findings with the results of laboratory tests of influenza virus infection. The investigations carried out corresponded closely with those just described. A diagnosis of influenza was made when the virus was recovered and when a fourfold rise in the agglutination titre occurred within ten to fourteen days after the patient's admission to hospital. The patients were divided into three groups: those who presented a picture of pneumonia or other respiratory disease unassociated with influenza, those who showed evidence of respiratory disease associated with influenzal infection, and those who had pneumonia with no evidence of influenza whose illness occurred during or after the epidemic. Clinical observation showed pulmonary complications to be bronchitis, sometimes of unusual severity, pneumonia of variable severity, in which pathogenic bacteria played a large part, and exacerbations of chronic pulmonary or cardiac disease, often fatal in old people. An attempt to distinguish clinically the true influenzal cases was not very convincing; the severe cases of staphylococcal infection could be recognized as non-influenzal, but, although the influenzal pneumonias were as a group more severe than the non-influenzal group, no clinical distinction could be made in individual patients.

These series show how difficult it is to make an aetiological diagnosis on clinical grounds alone, and how diverse are the characters of influenzal infections in different epidemics. It is natural that the results of treatment should differ also. Scher and Jaruszewski tried to evaluate the effects of treatment by different agents, in particular terramycin. The figures obtained do not show any striking specificity of action in any of the antibiotics used, and the duration of the febrile illness or of the pulmonary infiltrations does not appear to have been lowered to any significant degree. It is important to realize that these respiratory complications may occur whether related to secondary invaders or not, but as yet we have no striking therapeutic indications.

<sup>1</sup> Archives of Internal Medicine, August, 1952.

<sup>2</sup> The Quarterly Journal of Medicine, July, 1952.

## Abstracts from Medical Literature.

### PATHOLOGY.

#### Acute Necrotizing Glomerulonephritis.

J. D. BLAINNEY (*The Journal of Pathology and Bacteriology*, January, 1952) describes four cases, occurring in males, of diffuse patchy necrosis of the renal cortex associated with the sudden onset of anuria and closely resembling those described by Dunn and Montgomery as "acute necrotizing glomerulonephritis". The lesions are considered to be the sequel of extreme stasis of the blood in the renal cortical circulation, following dilatation of the capillaries of the glomeruli. The author states that no definite evidence has been found that this dilatation is inflammatory in origin, and the condition is regarded as a variety of cortical necrosis of the kidney rather than of acute diffuse glomerulonephritis.

#### Pathological Study of Retinoblastoma Treated by Radon Seeds and Radium Disks.

H. B. STALLARD (*The British Journal of Ophthalmology*, May, 1952) describes the effects of irradiation on retinoblastoma. He states that the effect is governed by the degree of cell differentiation, the radiosensitivity increasing the more immature and undifferentiated the cells. During mitosis there is an increased radiosensitivity of both normal and pathological cells. As a rule tumours which arise from radiosensitive tissue are radiosensitive and those from radioresistant tissue are radioresistant. Retinoblastoma is an exception, as the tumour is sensitive and the retina from which it arises is radioresistant. The richer the blood supply, the more radiosensitive the neoplasm. Radiosensitivity is greater in the young than in the old, it is reduced by cachexia, suppuration, tuberculosis and syphilis, and previous irradiation may cause the tissues to acquire resistance. After irradiation mitosis is atypical; it may be incomplete, remaining at the equatorial stage. Ultimately denaturation of the proteins and their precipitation produce an irreversible change characteristic of irradiation coagulation necrosis. Irradiated blood vessels become attenuated with disappearance of part or all of the vascular tissues, the vascular changes playing an important part in the disappearance of the neoplasm. They are also responsible for intraocular haemorrhage, irradiation cataract and slow healing of incisions in the conjunctiva and extraocular muscles. The nervous parts of the eye are not readily damaged. In the neoplasm parts of the retinoblastoma cells disappear, in some cases columns of cells persist, and in others there are pale-centred islands of degenerate necrotic and distorted cells. Calcification occurs in some islands. Swollen "ghost" cells occur in the nerve fibre layer. At and around the site of irradiation there occurs oedema of the retina, and in older specimens cystic spaces appear on the outer nuclear layer. Many of the blood vessels disappear, and the larger vessels become attenuated. The

ganglion cell layer is degenerate, and much of it is replaced by spindle cells. Deposits of homogeneous exudate and hyaline material appear in the outer nuclear and molecular layers. The rods and cones are destroyed, and granular pigment debris is present between the external limiting membrane and Bruch's membrane. Retinal haemorrhages occur particularly in the ganglion cell and inner molecular layers. The choroid at and around the site of irradiation becomes thin and atrophic, its vascularity is reduced and the chorio-capillaris becomes obliterated. Infiltration of the choroid by retinoblastoma cells is a bad prognostic sign. Iridocyclitis and complicated glaucoma are rarer after treatment with radon seeds and radium disks than after deep X-ray therapy.

#### Bone Marrow and Prostatic Carcinoma.

J. A. CLIFTON, R. J. PHILLIPS, E. LUDEVIC AND W. M. FOWLER (*The American Journal of the Medical Sciences*, August, 1952) have tested the value of marrow examination in diagnosing carcinoma of the prostate. They state that in 19 of 59 cases, malignant cells were found in material from marrow aspiration; in five of 19 cases there was no other evidence of bone involvement. There was no correlation between these metastatic deposits and the Broders grade of malignancy of the primary lesion. The authors recommend sternal marrow examination as a routine before surgical treatment of prostatic carcinoma.

#### The Serum Amylase Level.

T. S. MALINOWSKY (*The Journal of the American Medical Association*, August 9, 1952) has made studies of the usefulness of determining the serum amylase level when pancreatic disease may be suspected. He describes this as a simple informative test which should be carried out as a routine in all patients with acute abdominal pain. In acute pancreatitis significant elevations of the serum amylase level occur within a matter of hours, and maximum concentrations are observed in twelve to twenty-four hours. There appears to be no constant relationship between the height of the amylase level and the severity of the attack. The serum amylase level is raised in acute exacerbations of chronic recurrent pancreatitis, but it is raised in carcinoma of the pancreas only when the main pancreatic duct is obstructed. Perforated duodenal ulcer may be associated with a rise in the serum amylase level, even though there may be no pancreatic involvement. Diseases of the salivary glands and renal insufficiency sometimes raise the level.

#### Fibrinoid Necrosis in Rheumatic Fever.

L. E. GLYNN AND G. LOEWI (*The Journal of Pathology and Bacteriology*, April, 1952) report that fibrinoid material in subcutaneous nodules from cases of rheumatic fever has been examined histochemically. They state that it differs from fibrin in its fibrillar structure as revealed by silver impregnation and by its resistance to tryptic digestion. It differs from collagen in its argyrophilia and in its intensely positive reaction with the periodic acid-Schiff's reagent method. It resembles collagen in being attacked by trypsin

after denaturation by heat or urea. Removal of polysaccharide by pectinase or extraction with potassium salts results in the simultaneous loss of reaction with the periodic acid-Schiff's reagent method and of argyrophilia. It is concluded that the fibrinoid change is brought about by the infiltration of collagen with a polysaccharide-rich material, possibly a glycoprotein.

#### Intravenously Injected Carbon and Micrococci in Normal and Tuberculous Tissue.

A. G. SANDERS, H. W. FLOREY AND A. Q. WELLS (*The British Journal of Experimental Pathology*, October, 1951) have studied the behaviour of intravenously injected particles of carbon and micrococci in normal and tuberculous tissue. They used the technique of inserting a "Perspex" chamber into the rabbit's ear and then after a time injecting particles into the marginal vein of the opposite ear and observing events in the blood vessels in the chamber. In a normal animal, injection of 10 millilitres of a suspension of sterile carbon particles was followed in five minutes by the appearance of emboli in the vessels in the chamber, and at the end of thirty minutes' observation no more particles were seen. Micrococci suspended in 30% rabbit serum in normal saline was used for the next experiment, and a similar phenomenon was observed; it appeared that leucocytes also tended to stick at places in the vessels (at the growing edge of the tissue) where emboli lodged. Fluorescent light helped these observations, and the fluorescent masses could be seen still in position some days later, finally disappearing. A technique was devised whereby a steel pin in the base of the chamber could be withdrawn and dipped in a liquid culture of tubercle bacilli and then replaced, thus inoculating the tissue, which in ten to fifteen days developed an opacity and exudate of cells together with retarded blood flow and stasis. The subsequent inoculation of micrococci suspension into the opposite ear was carried out in order to watch the response of the tuberculous lesion to this particulate anti-tuberculous agent. Necrosis developed in the area of the tuberculous lesion, and the micrococci adhered to the vessel walls in the region in considerable amount, as in the edge of the normal tissue. There was, however, no suggestion that there was any modification of the tuberculous process. The micrococci did not pass into the tissue macrophages from the vessels. Tubercle bacilli could be demonstrated in the necrotic material in the chamber and isolated in pure culture.

#### The Tuberculin Reaction and Cortisone.

P. G. H. GELL AND ISOBEL T. HINDE (*The British Journal of Experimental Pathology*, December, 1951) have studied the histology of the tuberculin reaction and its modification by cortisone. They used pairs of rabbits sensitized by the intradermal inoculation of a dose of 0.3 milligramme of heat-killed human tubercle bacilli suspended in paraffin. They produced tuberculin reactions by the intradermal injection of 0.1 millilitre of a 1:125 saline dilution of old tuberculin, and they compared this with the inflammatory reaction produced by a similar-sized



response to phospholipid from the guinea-pig brain. Test animals were given cortisone, and at comparable times lesions were excised from control and test rabbits, and the tissues studied histologically, the maximum effects being visible after twenty-two hours. The authors state that the swelling of the lesion is due to increase in cellularity. In the non-specific lesion the polymorphonuclear cell predominates, and there is some oedema. In the tuberculin reaction the predominant cell is mononuclear, though polymorphonuclear cells are numerous, and after twenty-two hours histiocytes are considerably increased, and the lymphocytes are pronounced. When cortisone is given, the appearance of the lesion after twenty-two hours is less swollen and erythema is not uniform. Histologically there is a great reduction in the number of cells, and vascular congestion is almost absent. The polymorphonuclear cells appear more conspicuous in the absence of lymphocyte and histiocyte increase. The authors discuss the over-all picture of the lesions and their purpose, and suggest that the physiological purposes of the cells are linked to an antigenic response and to their phagocytic abilities. The action of cortisone in diminishing the numbers of these cells also links with its action in delaying the formation of granulation tissue in healing wounds. The authors suggest that the tuberculin reaction produces a "local lymph node" at the site of an injected antigen, and that cortisone interferes in a quantitative way with this process.

## MORPHOLOGY.

### Innervation of Parathyroid Glands.

H. E. RAYBUCK (*Anatomical Record*, January, 1952) confirms previous observations concerning a plexus of nerve fibres, believed to be vasomotor, on the blood vessels of the parathyroid, but reports a more abundant innervation than previously reported and states that the perivascular plexus includes sensory fibres in the outer zone of the adventitia and sympathetic vasomotor fibres in the inner zone adjacent to the media. The presence of nerve fibres which deviate from the blood vessels and appear to terminate in relation to the secretory cells supports the view that these cells are supplied with secretory fibres.

### Casts of Ventricles of Brain.

D. WOOLLAM (*Brain*, June, 1952) presents details of a new method of preparation of casts of the ventricles of the brain, particularly suitable for the preparation of such casts in the routine examination of the brain in the post-mortem room. The author points out that the effects produced by a space-occupying lesion inside the cranial cavity are often difficult to visualize because of the difficulty of forming an adequate picture of the appearance of the ventricles of the brain. The information gained by the study of ventriculograms obtained during life is difficult to correlate with the post-mortem appearance unless a cast of the ventricles is available. Such casts are not commonly prepared because of the labour and time involved

if one of the traditional methods is used, hence the search made for an injection mass with the following properties: (i) it should be able to be used to form a cast of the ventricles while the brain remains in the skull; (ii) it should be of such a nature that it does not solidify immediately after contact with the brain tissue, but only later at a controllable point; (iii) it should be capable of completely filling the ventricular system when injected at a low pressure. After trial with various substances, the most suitable material and one which fulfilled the three criteria was "Neoprene 601a". Casts obtained are illustrated, and the significance is discussed of the salient difference between the ventricles of the human foetus and those of the adult.

### Dorsal Root Pain Fibres.

K. M. EARLE (*Journal of Comparative Neurology*, February, 1952) states that the fine fibres of the dorsal roots of the spinal cord which probably carry the sensation of pain, bifurcate at the root entrance zone into ascending and descending branches and proceed toward the medial division of Lissauer's tract, where they give off numerous collateral branches at right angles and end within one or two segments around marginal cells and cells of the *substantia gelatinosa* or of the dorsal grey columns. The secondary neurons which send their axons to the opposite lateral spino-thalamic tract are probably the marginal cells or cells in the dorsal grey column rather than cells of the *substantia gelatinosa*.

### Origin of Pyramidal Tract.

A. M. LASSEK (*Journal of Comparative Neurology*, February, 1952) comments on the point that, in spite of the fact that the pyramidal tract has been investigated by every known type of neurological research in different species of mammals, including man, there is little uniformity of opinion regarding either the precise area of origin of pyramidal fibres in the cerebral cortex or the histological nature of all the cells of origin. Therefore he reports a degenerative study of the effect of frontal lobe extirpations on pyramidal tract axons. He finds that extirpations of the frontal lobe, including all its cortex and basal ganglia, does not produce degeneration in all the fibre components of the pyramidal tract in the monkey. About one-third or more of its axons arise elsewhere than from this part of the brain. The axons which remain stainable by silver technique are mostly of small calibre, and it is possible that their cells of origin are likewise of miniature size.

### Adipose Tissue.

D. W. FAWCETT (*Journal of Morphology*, March, 1952) states that in addition to ordinary white or yellow adipose tissue there occurs in many animal species a second type of fatty tissue distinguishable by its brown colour and lobular, gland-like appearance. Brown adipose tissue is most extensively developed in animals which hibernate and was formerly regarded as an endocrine gland functionally related to winter dormancy. For this reason it is often called the "hibernating gland". However, fatty tissue having the same gross structure and microscopic appearance is found in a

number of non-hibernating mammals including the rat, mouse and rhesus monkey. The evidence to date does not seem to warrant the designation of this tissue either as a gland of internal secretion or as an organ of hibernation. It appears instead to be a special form of adipose tissue which is histogenetically distinct from ordinary fat and physiologically more active.

### Cavum Septi Pellucidi.

J. T. SCHWIDDE (*A.M.A. Archives of Neurology and Psychiatry*, May, 1952) presents the results of a study of the *cavum septi pellucidi* and its posterior extension, the *cavum Vergae*. The study was undertaken because occasionally these spaces may dilate to an abnormal degree, simulate tumour, and produce severe neurological symptoms. The author briefly discusses the anatomy, embryology, history and characteristics of the cava, and bases his figures concerning incidence, size *et cetera* on the examination of 1032 specimens. He found that 20-34% presented cavities, and that the incidence in the male was slightly higher than in the female. 2-32% also presented a posterior extension, or *cavum Vergae*, and in no case was this cavum found to exist alone. The diameters of these cavities were recorded, the largest measuring 20 millimetres (transverse diameter) by 25 millimetres (vertical diameter) and 68 millimetres in length. Contrary to the belief of some observers, septal cysts are not a constant finding in the newborn, as 65 brains of stillborn or newborn infants showed no cavity of the *septum pellucidum*. Graphs are given showing the age distribution of septal cysts at ten-year intervals; no significant difference is apparent in the incidence in males and females.

### The Divisions of the Bronchi.

J. HAYWARD AND L. MCA. REID (*Thorax*, March, 1952) describe observations on the anatomy of the intrasegmental bronchial tree. They point out the fallacies of regarding subpleural lesions as being peripheral in origin within the lung and of attempting to describe the position of lesions of the bronchial tree by reference to the diameter of the bronchi at the site of the lesion. They state that a reliable method of specifying positions in the bronchial system is to do so by reference to the number of "generations" or divisions of bronchi, counting from the hilum. The sacculi in sacular bronchiectasis are subpleural. Consequently they have often been regarded as due to bronchiolar dilatation. Had their distance from the hilum been measured in terms of the number of bronchial generations leading to them, it would have been found that the sacculi arise from lesions extending well into the proximal part of the bronchial tree and that their subpleural position is due to destruction of the bronchi and lung distal to this level. Cartilage disappears from the walls of the air passages at about the tenth generation or division, proceeding axially. The smallest number of bronchial generations which can occur between segmental bronchus and a respiratory bronchiole is about eight and the largest number about 25. The highest counts are obtained by proceeding axially along the pulmonary segment, the lower ones by deviating into lateral branches.

## Special Articles for the Clinician.

(CONTRIBUTED BY REQUEST.)

### XLVII.

#### OTITIS MEDIA: ITS CAUSES AND PREVENTION.

BETWEEN the catarrhal and the suppurative forms of middle ear disease, the difference is essentially only a matter of degree. The principal factors concerned are the virulence of the infecting agent and the tissue resistance. The common pathway of infection is via the Eustachian tube. It is only very rarely that infection reaches the middle ear through the blood-stream, or from the meninges to the inner ear and thence to the tympanum.

The state of health of the structures and tissues of the nose and pharynx is thus the first item for consideration. The commonly occurring acute infections of these parts, such as colds, and the infectious fevers, such as measles, scarlet fever and diphtheria, are frequently complicated by acute *otitis media*. It is probable that over-forceful blowing of the nose during the course of these conditions may precipitate middle ear infection by propelling infected material upwards along the Eustachian tube to the middle ear. Another factor now often experienced, which operates in like manner, is the changing atmospheric pressure to which these parts are exposed in the rapid ascent and descent in aeroplane flights, so that the condition of "aero" *otitis media* has become a well-recognized entity. In the presence of acute upper respiratory infection when the offending organisms are of high virulence, a suppurative inflammatory reaction may be caused; while should the condition be a subsiding or low-grade chronic nasal or pharyngeal disorder, the middle ear reaction may be of the less fulminating catarrhal type. Such then are the basic infective and mechanical factors concerned. Apart from the simple forcing of infected material along the Eustachian tube to the middle ear, it is probable that in some inflammatory states, both acute and chronic, and in the allergic diathesis, the mucous membrane of the Eustachian tube and of the tympanum may be involved in the same vaso-motor and sensitivity reactions as occur in the upper part of the respiratory tract, so that one may react simultaneously with the other. It seems that only on an assumption of this nature can we explain those cases in which there is a proclivity to recurrent attacks of *otitis media*, which may develop quite rapidly, and which often elude control in spite of the removal of obvious mechanical obstructing factors and of gross infecting foci. In some of these cases, usually in children, the recurrent attacks of *otitis media* appear to develop almost at the same time as the nasal and pharyngeal reactions. Probably many of these reactions are allergic. The allergens may be bacterial or physical, or ingested or inhaled substances.

The aetiological factors may thus be quite simply summed up as follows: (i) Infections in the nose and throat extending to the middle ear via the Eustachian tube, possibly aided by such mechanical factors as over-hard blowing at the nose or the variable pressures of high altitude flying. (ii) Poor resistance or actual sensitivity of the tissues of the upper part of the respiratory tract and middle ear.

Middle ear inflammation may subside with but little harmful effect. The antibiotics have very greatly reduced the incidence of the life-endangering complications, which used to be so dreaded before these substances were discovered. Likewise the damage to hearing, which was so often to be expected when inflammatory processes in the middle ear were slow to get well, has been very largely eliminated. It is, nevertheless, wise to apply certain precautionary procedures which aim to prevent or avoid middle ear disease in acute upper respiratory infections. A more testing problem for the physician may be to devise measures which will check recurrent attacks of acute and subacute *otitis media* in a patient, usually a child, who has developed such a proclivity. Another type of case may be one in which there is variable, but perhaps slowly increasing, deafness of middle ear catarrhal type, presumably due to a continuing slow reaction or to the cumulative changes which are added to with each succeeding attack.

In acute upper respiratory tract infections, such as colds, influenza, measles and scarlet fever, *otitis media* is always a potential complication. The best safeguard against such spreading infection is to aim at speedy recovery from the

primary disease. While the storm lasts, however, certain measures may be followed with the specific purpose of avoiding the spread of infection to the middle ear.

The nose must be kept as clean as possible and the nasal airways should be helped to remain open, or at least should be caused to open whenever the patient wishes to blow the nose. Over-hard blowing of a stuffy nose when the naso-pharynx is occupied by infected exudate should be avoided. The patient must be told of this danger and should be shown how to avoid it. Nose drops of gentle vaso-constrictor type ("Neo-Synephrine", "Privene", "Endrine", "Glucofedrin", but not adrenaline, as the congestive after reactions to it may be severe) should be instilled at intervals. The patient should be warned to use drops before any efforts at forcibly blowing a very stuffy nose. If the patient will lie with the head well back drops will clear a way through to the naso-pharynx. The next step should be to draw down from the naso-pharynx any secretions which might possibly lie close to the opening of the Eustachian tubes. After these preliminaries, blowing of the nose may be attempted through one side at a time, so that no great build-up of pressure in the naso-pharynx takes place. In some cases, when nasal turidity is such that drops refuse to penetrate, the passages may be gently opened with the insertion of a wool-tipped applicator previously dipped in the vasoconstrictor solution. When there is a great accumulation of sticky exudate, a fine cannula or rubber tube connected to a suction apparatus may be employed to clear the nose and naso-pharynx, after some vasoconstriction has first been achieved. The addition of antiseptic substances to nose drops is probably of value in the prevention of secondary bacterial infections and the complications therefrom. To this end sulphathiazole, penicillin, aureomycin, proteinate of silver, "Monacrin" and such like substances have been incorporated in many proprietary preparations. Inhalations of volatile substances in a steamy vapour, or sprays, are useful, but it should be realized that the nasal passages must be opened up to some extent first with vasoconstrictor drops. The routine then should be first to use vasoconstrictor drops, then to clear the nose, and after that to use an inhalation or sprays.

Swimming and especially diving and high altitude flying should be forbidden during the course of any acute upper respiratory tract infection, if *otitis media* is to be avoided.

A word about the use of antibiotics, such as sulphonamides, penicillin *et cetera*, will not be amiss at this stage. These substances appropriately administered have gone far towards rapid control of acute upper respiratory infections, and thus towards the prevention of such complications as middle ear disease. All too often, however, patients are met with to whom the family doctor has given but one or two doses of penicillin, or perhaps forty-eight hours of treatment with sulphonamides. It is in this type of case, in which the primary disease has been inadequately treated in relation to both dosage and length of time of antibiotic medication, that complicating *otitis media* is prone to develop and to become severe. Let it be stressed again then that in the use of these substances the dosage must be adequate, and treatment must be maintained until cure is well in sight; that is to say, for at least four or five days, and possibly for a week or more.

For the control of recurrent and chronic middle ear inflammation, whether suppurative or catarrhal, disease in the nose and throat must first be overcome. The whole list of infections and disorders of these parts may have to be thought of. Tonsils, adenoids, infected sinuses, factors causing obstruction to ventilation and drainage of these parts, such as septal deflections, polypi or enlarged turbinates, allergic sensitivity and other forms of vasomotor rhinitis and poor resistance to infections may all have to be taken into account. If the treatment succeeds early enough in overcoming disease and disorders in the nose and throat, the middle ear reactions may soon respond to Eustachian inflations, either with the Politzer bag alone or with Eustachian catheters, on perhaps three or four occasions at intervals of three to ten days. The patient may, in the meanwhile, carry out similar treatment at home once or twice daily, performing Valsalva inflation of the middle ear during the process of using a compound inhalation such as the following:

Mentholis .....	grains 15
Eucalyptolis .....	minims 20
Acidi Carbolic Liquefacti .....	minims 6
Tinctura Iodidi Etheriae .....	minims 15
Tinctura Benzoini Simplex .....	drachms 4
Spiritus Vini Rectificatus .....	ad one ounce

In most instances further attacks of *otitis media* may be prevented, and, apart from occasional irreversible damage, the functional effects may be corrected in the manner outlined. There remains that relatively small, but highly troublesome and worrying, class of case in which a tendency to attacks of *otitis media*, either catarrhal or suppurative, continues in spite of the correction or removal of all obvious and most potential aetiological factors. A less conspicuous type is one with slowly progressive deafness of catarrhal type, the effects developing insidiously rather than in repeated dramatic episodes. To control these cases may test the ingenuity and skill of the practitioner in every conceivable direction. A careful radiological study of the nasal sinuses, including the sphenoid and ethmoid cells, must be undertaken. Overlooked or recurrent infected foci in the tonsil beds must be sought. The naso-pharynx must be carefully inspected for remaining adenoid masses or infected pockets in the fossae of Rosenmueller or in the mid-line (Thornvald's fistula). In a nervous child examination of the naso-pharynx may not be tolerated, yet it is the very region which must be closely inspected. It should be obvious, though not always acted upon, that in such a case the patient must be examined under a general anaesthetic. On this occasion, not alone will naso-pharyngeal disease, such as residual or recurrent adenoid tissue, be recognized and corrected, but if X-ray examination findings indicate it, the antra and other sinuses may be washed out and treated with penicillin, and a Eustachian catheter passed through the nose may be employed to test the patency of the Eustachian tubes and to inflate the middle ear with air, and possibly to blow out accumulated mucus from the tympanic cavity, through a small puncture made in the drum membrane. It must be realized that sometimes any or all of these processes may have to be repeated, for adenoid tissue may become hypertrophied again and sinus infections often require more than one treatment, a fact by the way which is not the fault of the previous proof-puncture, but a necessity on account of the closed-in nature of the nasal sinuses. A thorough study of all possible allergic factors may be necessary, and, to check vasomotor instability, emotional and environmental influences may have to be considered. It has been thought that inconspicuous yet possibly diseased lymphoid tissue about the pharyngeal ostium and in the walls of the Eustachian tube might be the cause of repeated attacks of *otitis media* or of slowly advancing deafness. With this thought in view radium-carrying or radon-carrying applicators have been devised. These are passed in readily through the nose, so that the active portion is placed adjacent to the Eustachian ostium in the naso-pharynx. The dosage and the filtration have been designed so as to deliver an amount of irradiation which will cause regression of lymphoid tissue without harming other parts. The procedure is painless and rapid. X radiation, appropriately focused and screened, may be similarly employed. These procedures do appear to have a beneficial effect in some cases, but not in all. Treatment of allergy may call for dietary restrictions, climatic and environmental control, desensitizing inoculations and anti-histamine medication. It is rewarding to succeed in a proportion of these difficult cases. A number remain elusive in spite of every thought and endeavour of the physician. Such is the challenge and interest of medical practice, however, that some of our problems still await the final solution.

DOUGLAS G. CARRUTHERS,  
Sydney.

## British Medical Association News.

### SCIENTIFIC.

A MEETING of the Victorian Branch of the British Medical Association was held on May 7, 1952, at the Medical Society Hall, 426 Albert Street, East Melbourne, DR. C. BYRNE, the President, in the chair.

#### Standards of Fitness.

AIR VICE-MARSHAL E. A. DALEY read a paper entitled "Medical Standards of Fitness in the Royal Australian Air Force" (see page 25).

DR. W. W. S. JOHNSTON read a paper entitled "Standards of Fitness from the Life Assurance Viewpoint" (see page 27).

MAJOR-GENERAL F. KINGSLEY NORRIS read a paper entitled "Medical Examination of Recruits for the Services" (see page 31).

DR. M. A. REES, in opening the discussion, said that he had been very interested in the papers, because in the Victorian railways they examined thousands of men every year. Their standards of fitness used to be very rigid, but recently, because of shortages in staff, men were being taken on who did not conform to previous standards. So far there had been no ill effects. Dr. Rees went on to explain that in the Victorian railways there had gradually developed a system to deal with the various types of work done, and medical assessment took this into account in deciding what job a man could deal with. Turning to the question of colour vision, Dr. Rees pointed out that there were some 5% to 7% of failures, and he wondered whether that proportion was similar to that found in ordinary spheres of life. He wondered whether it might raise hazards in ordinary life, in which so much depended on colours, and how important it was in life assurance work. He also noted that in the Royal Australian Air Force the acceptable degree of hypermetropia was two dioptres, whilst in the railways one dioptre was the maximum acceptable.

GROUP CAPTAIN R. B. DAVIS said that he understood the Royal Australian Air Force figures for colour blindness were 7% defective, but only 3% unsafe, and therefore the latter recruits were the only ones excluded from special musters.

DR. DICKSON asked Dr. Johnston what weight was placed on the fact that a proponent's parents had died in a mental hospital. Sometimes old people needed care which could not be given them anywhere else, and he wondered whether that fact was likely to be held against the man seeking a life policy. He also wondered why assurance companies were reluctant to insure women, as it was generally agreed that they lived longer than men.

DR. JOHNSTON said that, when one parent had died in a mental hospital, that fact might not necessarily be regarded as a defect in a proponent, but if both had died in a mental hospital it would probably be regarded differently. With regard to the question of insuring women, the reluctance might be explained by the fact that, as a rule, women were not keen on being medically examined. There were other less important reasons as well.

DR. K. H. HALLAM said that in the last few years a number of people must have had their chances of life assurance damaged by being accused of having a "spot on the lung". He pointed out also that the extent of smoking and drinking present in the population was not generally realized. He thought, therefore, that it was important to check on the personal habits of any person seeking a life assurance policy.

DR. M. DAVIS wondered whether it might be difficult to assess the problem of potential of individuals to carry out the work required of them. A passing illness or a domestic upset might interfere at one time. However, he had been impressed by the outline given by Major-General Norris.

Major-General Norris said that the comments had been interesting and stimulating. He agreed with Dr. Davis about the assessment of potential, but he pointed out that there must be standards before early training could be started, and at that stage assessment could be undertaken. If the trainee was then proved to be unsuitable for the services, he should be discharged, but not with a medical discharge. Major-General Norris went on to explain that two medical officers always examined a recruit to try to overcome the possibility of divergence of opinion between the medical men about the recruit. The question of psychological assessment was a difficult one. He did not think that a psychiatrist or psychologist was required, as a common-sense recruiting officer was all that was necessary. The specialists should not be called in as a routine procedure. Major-General Norris went on to say that he would like to see a probationary period in the armed services, to enable an accurate assessment of the recruits to be made.

DR. C. BYRNE, the President, from the chair, said that he had recently read that of a group of people showing no cardiac signs at the age of forty-five years, during the next twenty years a certain number developed coronary arterial disease. In that group 20% of the medical practitioners developed such evidence, while the over-all percentage was only 10%. Dr. Byrne asked Dr. Johnston to comment on the observation.

DR. JOHNSTON said that it was a matter of stress and strain of the medical practitioner, living as he did a life with irregular working hours. He did not know how it was possible to pick which persons would develop such a disease and which would stay apparently immune, given that the working conditions were identical.



A MEETING of the New South Wales Branch of the British Medical Association was held on June 18, 1952, at the Royal Alexandra Hospital for Children, Sydney. The meeting took the form of a series of clinical demonstrations by members of the honorary medical and surgical staff of the hospital. Parts of this report appeared in the issues of December 6 and 20, 1952, and January 3, 1953.

#### Hirschsprung's Disease.

DR. E. S. STUCKEY showed a boy who had been born on December 30, 1951, and admitted to the hospital on January 2, 1952. He had been born after a normal pregnancy; at seven months a breech position was present, but it corrected itself by spontaneous version. At birth the child was affected by *asphyxia pallida*; he was revived with oxygen, lobeline, "Coramine" and "Synkamine". He had no siblings. He had passed meconium at birth, twice on the day after birth and again on the third day. Since then no meconium had been passed, and increasing abdominal distension was noted. Rectal examination at that stage revealed a band about one and a half inches from the anus, not tight enough to cause obstruction.

On the day of his admission to hospital the infant was febrile; his abdomen was greatly distended, but the liver and spleen were not palpable. The cord was still attached. No abnormality was detected in the cardio-vascular, respiratory or central nervous system, the throat or the ears. A bowel washout on the day of his admission to hospital yielded small stringy flakes of mucus. Intravenous therapy was instituted. A plain X-ray picture of the abdomen revealed dilated small bowel with fluid levels. Laparotomy was performed on the same day. The abdominal cavity contained a large quantity of yellow fluid. The terminal portion of the ileum presented six constrictions due to incomplete mesentery. The large bowel was not distended, and there was no evidence of obstruction. The abdomen was closed.

After the operation several ounces of blood were aspirated from the stomach, and melaena occurred several times. Intravenous therapy and gastric suction were continued until January 31, when the child began to take feedings and was having occasional normal motions. Regular daily bowel washouts were instituted. Sigmoidoscopic examination revealed no abnormality. X-ray and fluoroscopic examination with a barium enema revealed a persistently narrowed segment at the pelvi-rectal junction and the mid-point of the descending colon. The possibility of Hirschsprung's disease was suggested.

On April 8 the patient contracted Sonne dysentery during a ward outbreak, and his weight fell from nine pounds four ounces to eight pounds eight ounces. Intravenous therapy and phthalylsulphathiazole were administered. Dr. Stuckey said that since the baby's recovery from the dysentery he had been able to take his own feedings and had steadily gained in weight; at the time of the meeting his weight was ten pounds. He had had no further normal bowel actions, and daily bowel washouts were continuing. It was intended to perform a one-stage operation when his condition warranted it.

#### Hirschsprung's Disease Complicated after Operation by Secondary Megacolon.

Dr. Stuckey also showed a male child who had been admitted to the hospital on September 15, 1951. His mother had a goitre. There were two other children in the family, both normal. The child had been born after a normal pregnancy and labour, and weighed eight pounds ten ounces at birth. He had passed meconium at birth. On the second day his abdomen became distended and he began to vomit bile-stained fluid after every feeding. He passed urine satisfactorily.

On the baby's admission to hospital his general condition and his state of hydration were good. His abdomen was greatly distended; the cord was still in place. A rectal examination was carried out; the little finger was inserted with difficulty, and there was no meconium on it when it was withdrawn. After the rectal examination the child had a large bowel action and passed apparently normal meconium. No abnormality was detected in the chest, heart or central nervous system. A plain X-ray film of the abdomen revealed dilated loops of small bowel, but no fluid levels. Faber's test revealed the presence of epithelial cells.

Feeding with modified cow's milk was commenced, and daily bowel washouts were instituted. The child vomited frequently after feedings and failed to thrive. On September 22 X-ray examination after a barium enema revealed no abnormality of the colon. Trypsin was present in the stools. The child's weight remained stationary, and on November 2

fluoroscopic examination with the aid of a barium enema revealed evidence of true Hirschsprung's disease. On February 4, 1952, recto-sigmoidectomy of the Dennis-Browne type was performed. Intravenous therapy and gastric suction were continued for two days after operation. There was no abdominal distension and the bowels opened normally. Rectal examination ten days after operation revealed some stenosis at the suture line. The stricture was dilated daily, bougies up to sizes 12 to 15 being inserted without difficulty, and the child was discharged from hospital on March 23 with some abdominal distension, but with the bowels operating normally.

He was readmitted to hospital on April 27, because since his discharge he had had intermittent attacks of abdominal pain and distension which had increased in severity. Examination revealed distension of the child's abdomen, and when rectal examination was attempted the stricture would admit the index finger only as far as the first joint. Treatment consisted of polyvitamin therapy, finger dilatation of the rectum every second day, daily bowel washouts and the daily administration of "Agarol". The distension had been reduced, the bowel washouts were producing a good result, the stricture now admitted the index finger to the second joint, and there were frequent normal bowel actions. The patient weighed 14 pounds seven ounces, and the infantile eczema present on his admission to hospital was subsiding.

#### Atresia of the Sigmoid Colon.

Dr. Stuckey's next patient was a girl, who had been admitted to hospital on December 10, 1950. She was the seventh child in the family, and two siblings had died of diphtheria. The mother had suffered from pyelitis of pregnancy. The patient had been born on December 8, and vomiting had commenced after the first feed and been frequent since. The vomitus was dark green and thick, later brown, and finally yellow. Abdominal distension was first noted six hours after delivery, and had increased. The child had passed a small amount of meconium on the second day of life, but none since.

Examination on the child's admission to hospital showed her to be moderately dehydrated; the abdominal skin was lax, and the fontanelle was full. The abdomen was moderately distended, and the edge of the liver was palpable, but no tenderness and no masses were present. Rectal examination showed the anus to be tight and the rectum grossly narrowed—it admitted only the tip of the little finger. The baby passed some mucoid material afterwards. No abnormality was detected in the cardio-vascular or respiratory system. A bowel washout produced no return. A plain X-ray film of the abdomen revealed obstruction and dilatation of the small bowel and scattered gas in the large bowel. No epithelial cells were found when Faber's test was performed.

On the day of the child's admission to hospital laparotomy was performed. The small and large bowel were dilated. There was complete atresia of the sigmoid loop about six inches from the anus, and the bowel distal to it was like ribbon. A colostomy was performed. After operation the child was treated with fluids administered intravenously and gastric suction for several days. The colostomy was opened and worked well. Daily dilatation of the anus was carried out, and the patient was discharged from hospital on January 5, 1951, daily dilatations being carried out by her mother.

The child was readmitted to hospital on November 17. The colostomy had been working well since her discharge from hospital, and her general condition was good. On November 21 recto-sigmoid anastomosis was performed, after excision of the colostomy and the atretic portion of the rectum. Recovery was uneventful, and the patient was feeding well and having normal bowel actions on her discharge from hospital on December 6.

#### Syndactyly.

Dr. Stuckey finally showed a girl suffering from syndactyly. The mother had a cleft palate. Two siblings, aged nine and five years, were alive and well and had no congenital defects. A maternal aunt had died of tuberculosis in 1946. The child had previously suffered from pertussis and varicella. All her fingers and the thumb of her right hand were joined together, and had been since birth. X-ray examination showed that the phalanges were normal and separate.

In March, 1951, the thumb was separated by a plastic operation. After it the child began to use her right hand freely; she was obviously right-handed. In March, 1952, the middle and ring fingers were separated; triangular flaps were raised from the fingers and sutured by Z-plasty across

the interdigital clefts. The bare areas were covered by Thiersch grafts. Recovery was uneventful, and the patient was discharged from hospital on April 9, with the wound well healed.

#### Bilateral Subdural Haematoma.

Dr. M. Sofer Schreiber showed a male child, aged four months, who had been admitted to hospital on December 26, 1951. He was the second child of the family, and his birth and neonatal period had been normal. He had no history of injury or illness. Vomiting had been present for a week. He had had one "turn" in which he went limp, his legs were stiff, and he appeared to be unconscious for a few minutes. Subsequently he was irritable and drowsy, and appeared to squint. His head was large (seventeen and five-eighths of an inch in circumference) and the fontanelle was bulging; slight hypertonicity was present with paresis of the left sixth cranial nerve. The fundi were normal. A plain X-ray film of the skull showed widening of the sutures, suggesting an increase of intracranial pressure. There was a large circular Wormian bone at the lambda. The cerebro-spinal fluid was clear and contained no cells; the protein content was 10 milligrammes per centum and the chloride content 650 milligrammes per centum. On January 16, 1952, a pneumoencephalographic examination revealed moderate dilatation of the ventricles, well-filled basal cisterns, and a large collection of air in the subdural space on the right side. The collection appeared to be separated from the inner table of the skull by a space, which was thought to be occupied by a subdural haematoma. On January 23 bilateral subdural tapping confirmed the diagnosis of bilateral subdural haematoma, 20 millilitres of xanthochromic fluid being removed from the right subdural space, and 15 millilitres from the left subdural space. Examination of the subdural fluid gave the following information: that from the right side contained numerous red cells, 84 monocytes per cubic millimetre, and 4000 milligrammes of protein per centum; that from the left side contained 42 monocytes per cubic millimetre and 4000 milligrammes of protein per centum. Gradual decompression was then achieved by repeated subdural tapping.

At the first operation on February 13 bilateral temporal exploratory burr holes were made, and well-formed membranes were evident. At the second operation on February 15 a large right frontoparietal osteoplastic flap was turned down. Deep to the dura, which was thicker and more vascular than normal, was a well-formed, rust-coloured outer membrane overlying a large collection of xanthochromic fluid, which produced a blue appearance. The outer membrane was reflected, and the fluid was aspirated. Deep to it was a fine thinner membrane overlying more fluid. The membrane was reflected. Deep to it was still another fine inner membrane overlying the arachnoid membrane. All the abnormal membranes were excised within the limits of the exposure. At the third operation on March 12 a similar left craniotomy was performed, with identical findings. Bilateral subdural tapping was carried out on March 27. No abnormal subdural collections were present, which showed that the brain had reexpanded. The child's head circumference was 19 inches, and he was discharged from hospital, well, on March 28.

#### Agenesis of the Corpus Callosum.

Dr. Sofer Schreiber then showed a male child, aged eight months, a backward child, who had been admitted to hospital for investigation on May 1, 1951. He was the eighth child of normal parents; twin sisters were backward. The pregnancy, birth and neonatal period had been normal. The patient could neither sit up nor hold his head up properly, and he had an asymmetrical skull, the circumference of which was 17.5 inches.

A plain X-ray film of the skull showed it to be brachycephalic. The asymmetry appeared to be caused by a flattening of the right parietal bone. A pneumoencephalographic examination showed that the lateral ventricles were widely separated and had angular dorsal margins and concave medial borders. The third ventricle was extended upward and dilated, and the interventricular foramina were elongated. The appearances were those seen in agenesis of the corpus callosum. The patient's subsequent progress was good; he was crawling and attempting to stand at eleven months, and did not then appear backward.

Dr. Sofer Schreiber said that failure of expansion of the dorsal commissure in the third to fourth month led to absence of development of the corpus callosum, fornix and septum pellucidum, and the roof plate of the third ventricle extended to a higher level than normal, as it was not depressed by the corpus callosum. Defects other than those

of the corpus callosum were responsible for any clinical manifestations that might be present in affected patients. It was stated that "no unusual effects resulted from division of the corpus callosum—save perhaps abolition of some conditioned reflexes", so that no direct clinical signs would be expected.

#### Scar Contracture of the Right Axilla.

Dr. David Dey showed a boy, aged ten years, who had been burnt with methylated spirit on December 16, 1950, with severe involvement of the right breast and the anterior fold of the axilla. He had first been admitted to the Royal Alexandra Hospital for Children on January 25, 1951, with that area badly infected. After preliminary treatment the granulation tissue was excised, and thin postage-stamp grafts were applied on February 1. It was noticed at that time that there had been destruction of all the skin in the area of the anterior fold. Most of the grafts "took", and with the use of some refrigerated pieces applied one week later skin cover was virtually complete by March 1. Subsequently, in spite of exercises and superficial irradiation, some keloid formation and scar contracture followed. Abduction of the arm was limited to some 60°. Excision and replacement of the whole keloid were obviously impracticable, but restoration of function was imperative. A migrated pedicle flap offered the only solution.

A series of operations were carried out. On September 13 a right-sided abdominal tube pedicle was raised, measuring six inches by two and a half inches. On October 4 the upper end of the tube was attached to the ulnar border of the left wrist. On November 1 the pedicle was transferred to the axilla. On December 6 the scar was excised and repair was completed. At the time of the meeting full abduction of the arm was possible, and it was to be expected that the keloid on the breast would regress with the passage of time.

#### Keloid Scar on the Right Forearm.

Dr. Dey next showed a girl, aged seven years, who had sustained a scald of the right forearm fourteen months before. The keloid scar present was considerable, notably vascular, and itching. There was no limitation of movement, but superficial irradiation had produced no improvement.

At operation on April 6, 1951, the major portion of the scarred area was excised, and the defect was filled by means of a thick split-skin graft cut with the dermatome from the inner side of the right thigh. The graft was cut to a pattern and sewn in accurately, a complete "take" following with healing by primary intention. No appreciable new keloid had been formed, and the result was satisfactory from functional and cosmetic viewpoints.

#### Congenital Ptosis of the Right Upper Lid.

Dr. Dey's next patient was a girl, aged eight and a half years, who had been admitted to hospital on October 24, 1951, with a history of a drooping upper right lid present for some years. It was so severe as to necessitate her tilting back her head to see out of her right eye. Apart from some mild mental retardation she was otherwise well.

At operation on November 1, the tarsal plate was suspended from the frontalis muscle by means of a fascia lata sling taken from the right thigh. Dr. Dey said that that procedure was preferred, as it placed no extra strain on the superior rectus muscle of the eye and was independent of the condition of that muscle. Further drooping was easily corrected if it occurred.

#### Hypertelorism.

Dr. Dey finally showed a girl, aged three and a half years, who showed the stigmata of hypertelorism—namely, (i) abnormal width between the eyes, (ii) a grossly flattened nasal bridge, and (iii) pronounced epicanthic folds. She was otherwise normal, and a happy attractive child. Dr. Dey said that it was not possible to adjust the width of the nose. The epicanthic folds were of minor importance, but comparatively easy to correct. On the other hand, it was thought that, whilst eventually a bone graft would be necessary to build up the nose to a normal height, some correction during the growth period should be attempted, both for psychological reasons and to stimulate the growth of skin to accommodate the final bone graft. Advantage was taken of the fact that plastic polythene was virtually inert in the tissues and could be carved to any required form. At operation on January 24, 1952, a Z-plasty to the epicanthic folds was carried out. On February 14 a prepared polythene prosthesis was inserted through a columellar incision. Dr. Dey said that the procedures had produced considerable improvement in the child's appearance. It was intended to replace

the prosthesis with progressively larger ones, as indicated, until a definitive bone graft could be inserted at the age of about eighteen years.

#### Ectopic Ureter.

DR. D. H. COHEN showed a female patient, aged ten years, whose mother said that the child had never been "dry" since birth; the condition was worse during the day than at night. She also passed urine at normal intervals and had normal bladder sensation. She had been given tablets for enuresis with no improvement.

A number of special investigations were carried out. Indigo-carmin (0.4%) was injected into the bladder and a vulval pad was applied for one hour. At the end of that time the pad was soaked with colourless urine, which showed that the bladder was not the source of the efflux. Examination under anaesthesia revealed an ectopic ureteric orifice posterior and to the right of the urethral orifice, from which urine was continuously leaking. A probe could be passed with some difficulty into the orifice. Subsequently a ureteric catheter stiffened with tonsil wire was introduced, 40 millilitres of sodium iodide solution were run in, and X-ray films were taken in the antero-posterior and right oblique positions. They showed a dilated and tortuous ectopic right ureter extending to the upper pole of the right kidney. Retrograde pyelography was performed simultaneously. Only one ureteric orifice was seen on each side, but only the upper calyx of the left kidney could be filled. Intravenous pyelography subsequently revealed what appeared to be a partial duplication of the ureter on the left side, and a single ureter on the right. There was a weak dye shadow near the upper pole of the right kidney. Microscopic examination and attempted culture of the urine were carried out. A catheter specimen from the bladder was normal. A specimen from the ectopic ureter yielded a profuse growth of *Bacterium coli*.

Partial nephro-ureterectomy was carried out. The kidney was exposed through the usual loin incision. The upper segment of renal tissue was connected to the ectopic ureter, which was clearly demarcated; it was further defined by ligation of its blood supply prior to division. Bleeding from the kidney was controlled by a few mattress sutures. The dilated ectopic ureter was dissected down as far as possible, and then again exposed by an oblique extraperitoneal abdominal incision and dissected well down into the pelvis, where it was transected.

#### VICTORIAN BRANCH NEWS.

THE Medical Secretary of the Victorian Branch of the British Medical Association has advised that the office bearers of the Branch for 1953 are as follows:

*President*.—Dr. Leonard Ball.

*Vice-Presidents*.—Dr. G. R. Weigall, Dr. H. G. Furnell.

*Honorary Treasurer*.—Dr. Douglas J. Thomas.

*Honorary Librarian*.—Dr. J. Gavin Johnson.

*Honorary Secretary*.—Dr. H. G. Hiller.

*Chairman of Council*.—Dr. H. C. Colville.

*Past President*.—Dr. Chas. Byrne.

#### THE DERMATOLOGICAL ASSOCIATION OF AUSTRALIA (BRITISH MEDICAL ASSOCIATION).

##### Annual General Meeting.

THE fourth annual general meeting of the Dermatological Association of Australia (British Medical Association) was held in Melbourne from August 21 to 19, 1952.

##### Retiring President's Address.

DR. J. J. WITTON FLYNN (Sydney) devoted most of his retiring president's address to the provision of details concerning the *Australian Journal of Dermatology* and pointed out that it had now appeared in four numbers, being published twice yearly. It had been warmly received in Australia and overseas, more than six hundred copies of the first number having been distributed to contributors, libraries and other sources. A copy had been forwarded for exhibition at the World Health Conference in Bandoeng. Dr. Flynn went on to say that the Association was now well established as an authoritative body and was con-

tributing considerably to the science of dermatology. Visits from overseas dermatologists of distinguished eminence had been arranged and articles had appeared in the *Australian Journal of Dermatology* in the name of some of these. He stressed the intimate relationship between dermatology and general medicine and the policy of the Association to invite contributors to the journal from the profession in general and from scientists. He paid tribute to the work of Dr. J. C. Belisario, who had read a paper before the tenth International Congress in Dermatology (London, July, 1952) on "The Pathogenesis of Eczema".

##### Office Bearers.

The following office bearers were elected for the year 1952-1953:

*President*.—Dr. M. R. Healy.

*Past President*.—Dr. J. J. Witton Flynn.

*Vice-President*.—Dr. L. W. Linn.

*Honorary Treasurer*.—Dr. E. Murray All.

*Honorary Secretary*.—Dr. R. F. A. Burke.

*Historian*.—Dr. W. W. Lempriere.

##### Clinical Meeting.

A clinical meeting was held at the Royal Melbourne Hospital on August 22, 1952. Discussion centred particularly on the treatment of *lupus erythematosus* and on the use of ACTH and cortisone in dermatology. It was pointed out that the latter agents had been saving in cases of generalized exfoliative dermatitis, systemic *lupus erythematosus* and pemphigus.

A case of long-standing lichenoid dermatosis which had developed in 1945 following the use of "Atebrin" was discussed. At the present time the picture was one of complete alopecia with leucoplakia of the tongue and buccal mucosa, atrophy and depigmentation of most of the skin surface. Early malignant degeneration had commenced in two areas.

A patient with pemphigus foliaceus and one with exfoliative dermatitis treated with ACTH were presented. Improvement was notable in both cases, and the patient suffering from pemphigus could now enjoy life. It was stressed that the progress of the disease was delayed and that cure had not been expected.

Of great interest was the case in which metastases were present in the scalp with cicatricial alopecia, the primary lesion having been a scirrhous carcinoma of the breast removed by radical mastectomy twelve years previously. The patient was a woman, aged fifty-eight years.

A round-table discussion was held with the vice-president in the chair. During this session dermatological problems and therapy were freely discussed. *Lupus erythematosus* and its response to "Atebrin", ACTH and cortisone was the principal topic discussed. There appeared to be no doubt that these agents would control many cases of chronic and acute *lupus erythematosus*. Long-term results had still to be assessed.

#### Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

##### QUARANTINE AGAINST SMALLPOX.<sup>1</sup>

Colonial Secretary's Office,  
Sydney,  
29 July, 1828.

James Bowman, Esq.,  
Principal Surgeon.

Sir,  
I am directed by His Excellency the Governor to desire that you will instruct Mr. Assistant Surgeon Mitchell to proceed down the Harbour tomorrow morning in company with the Master Attendant for the purpose of selecting a convenient place where the soldiers and convicts now on board of the BUSSORAH MERCHANT may be landed and remain in quarantine until it be ascertained that there is no risk of the contagion of the smallpox.

I have, &c.,  
ALEX. MCLEAY.

<sup>1</sup> From the original in the Mitchell Library, Sydney.



## Medical Prizes.

### DAVID ANDERSON-BERRY PRIZE (1953).

A DAVID ANDERSON-BERRY silver-gilt medal, together with a sum of money amounting to about £100, will be awarded during 1953 by the Royal Society of Edinburgh to the person who, in the opinion of the Council, has recently produced the best work on the therapeutic effect of X rays on human diseases. Applications for this prize are invited. They may be based on both published and unpublished work and should be accompanied by copies of the relevant papers. Applications must be in the hands of the General Secretary, Royal Society of Edinburgh, 22 George Street, Edinburgh, 2, not later than March 31, 1953.

## Australian Medical Board Proceedings.

### NEW SOUTH WALES.

THE following have been registered, pursuant to the provisions of the *Medical Practitioners Act, 1938-1950*, as duly qualified medical practitioners: Milne, John Edmondstone, M.B., B.S., 1951 (Univ. Queensland); Brindal, Rosemary Barbara, M.B., B.S., 1950 (Univ. Adelaide); Boyd, Gustavus Olaf Wilder Derrick Howard Van Someren, M.E., Ch.B., 1950 (Univ. Cape Town); Fische, Edward Gordon, M.B., Ch.B., 1915 (Univ. Dublin); Gillott, Roy, M.B., Ch.B., 1946 (Univ. Edinburgh); Harrison, Ronald Antony, M.B., B.S., 1947 (Univ. London).

The following additional qualifications have been registered: Elias, Leaton (M.B., 1938, Univ. Sydney), B.S., 1952 (Univ. Sydney); Indyk, Jack Solomon (M.B., B.S., 1945, Univ. Sydney), F.R.C.S. (England), 1951; Jones, Keith Stephen (M.B., B.S., 1935, Univ. Sydney), F.R.C.S. (Edinburgh), 1949; Peterson, D. Henry (M.B., B.S., 1939, Univ. Sydney), D.P.M. (Univ. Sydney), 1952; Wheeler, Llewellyn

Daniel (M.B., B.S., 1943, M.S., 1951, Univ. Sydney), F.R.A.C.S., 1952; Tyrer, John William Howard (M.B., B.S., 1942, Univ. Sydney), M.R.A.C.P., 1949; Mackie, Bruce Stephen (M.B., B.S., 1948, Univ. Sydney), D.D.M., 1952 (Univ. Sydney); Noad, Kenneth Beeson (M.B., Ch.M., 1924, Univ. Sydney, F.R.A.C.P., 1939), F.R.C.P. (London), 1948, M.D., 1952 (Univ. Sydney).

The following regional registration has been made for practice in the Sofala region as defined in a proclamation published in the *Government Gazette* of July 25, 1952: Soller, Karla, M.D., 1945 (Univ. Prague).

### TASMANIA.

THE following have been registered, pursuant to the provisions of the *Medical Act, 1918*, as duly qualified medical practitioners: Gunson, John Grattan, M.B., B.S., 1952 (Univ. Adelaide); Akeroyd, Helen, M.B., B.S., 1950 (Univ. Sydney); Reynolds, Farrell John, M.B., B.S., 1948 (Univ. Sydney); Walsh, Thomas, M.B., Ch.B., 1950 (Nat. Univ., Ireland).

## Naval, Military and Air Force.

### APPOINTMENTS.

#### ROYAL AUSTRALIAN AIR FORCE.

THE following alterations to the information published in the issue of December 13, 1952, are published at the request of the Director-General of Medical Services, Royal Australian Air Force.

#### Southern Area—Specialists.

##### Melbourne.

The entry "Orthopaedic Surgeon.—Wing Commander J. G. Brown, M.B., M.S., F.R.C.S. (Eng.), F.R.A.C.S. (251457)" should read as follows:

### DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED DECEMBER 6, 1952.<sup>1</sup>

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism .. ..	1(1)	4(4)	..	..	..	..	..	..	5
Amoebiasis .. ..	..	1(1)	1	..	..	..	..	..	2
Ancylostomiasis .. ..	..	..	..	..	..	..	1	..	1
Anthrax .. ..	..	..	..	..	..	..	..	..	..
Bilharziasis .. ..	..	..	..	..	..	..	..	..	..
Brucellosis .. ..	..	..	..	..	..	..	..	..	..
Cholera .. ..	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus) .. ..	..	..	..	..	..	..	..	..	..
Dengue .. ..	..	..	..	..	..	..	..	..	..
Diarrhoea (Infantile) .. ..	..	..	29(28)	..	..	..	..	..	29
Diphtheria .. ..	8(5)	3(3)	7(2)	..	2(2)	..	..	..	20
Dysentery (Bacillary) .. ..	..	1(1)	5(5)	1(1)	2(2)	..	..	..	9
Encephalitis .. ..	2(1)	1(1)	..	..	..	..	..	..	3
Filariasis .. ..	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice .. ..	..	..	..	..	..	..	..	..	..
Hydatid .. ..	..	..	..	..	..	..	..	..	..
Infective Hepatitis .. ..	..	5(4)	..	..	11(9)	..	..	..	16
Lead Poisoning .. ..	..	..	..	..	..	..	..	..	..
Leprosy .. ..	..	..	..	..	..	..	..	..	..
Leptospirosis .. ..	..	..	..	..	..	..	..	..	..
Malaria .. ..	..	..	..	..	..	..	..	..	..
Meningococcal Infection .. ..	1(1)	4(4)	1	..	..	..	1	..	7
Ophthalmia .. ..	..	..	..	..	..	..	..	..	..
Ornithosis .. ..	..	..	..	..	..	..	..	..	..
Paratyphoid .. ..	1	..	..	..	..	..	..	..	1
Plague .. ..	..	..	..	..	..	..	..	..	..
Poliovirus .. ..	14(7)	9(5)	4(1)	12(11)	..	5(2)	..	..	44
Puerperal Fever .. ..	..	1	1(1)	..	..	..	..	..	2
Rubella .. ..	..	131(106)	..	..	4(1)	..	..	1	136
Salmonella Infection .. ..	..	..	..	..	..	..	..	..	..
Scarlet Fever .. ..	24(14)	37(29)	1	5(3)	2(2)	2	..	..	71
Smallpox .. ..	..	..	..	..	..	..	..	..	..
Tetanus .. ..	..	..	..	..	..	..	..	..	..
Trachoma .. ..	..	..	..	..	..	..	..	..	..
Trichinosis .. ..	..	..	..	..	..	..	..	..	..
Tuberculosis .. ..	31(22)	11(7)	10(1)	19(19)	12(6)	5(1)	2	..	90
Typhoid Fever .. ..	2	..	2(1)	..	..	..	..	..	4
Typhus (Flea, Mite- and Tick-borne) .. ..	..	..	..	..	..	..	..	..	..
Typhus (Louse-borne) .. ..	..	..	..	..	..	..	..	..	..
Yellow Fever .. ..	..	..	..	..	..	..	..	..	..

<sup>1</sup> Figures in parentheses are those for the metropolitan area.

*Surgeon.*—Wing Commander J. G. Brown, M.B., M.S., F.R.C.S. (Eng.), F.R.A.C.S. (251457).

#### Eastern Area—Specialists.

*Sydney.*

The following additional appointment is notified:

*Gynaecologist.*—Wing Commander B. T. Mayes, M.V.O., M.B., B.S., F.R.C.S. (Ed.), F.R.A.C.S., F.R.C.O.G.

### Honours.

#### NEW YEAR HONOURS.

Her Majesty the Queen has been pleased to confer the honour of knighthood on Dr. Norman McAlister Gregg, Dr. Edmund Britten Jones and Professor Peter MacCallum.

Major-General Frank Kingsley Norris has been created a Companion of the Most Honourable Order of the Bath (Military Division).

Dr. Alfred Edward Rowden White has been created a Companion of the Most Distinguished Order of Saint Michael and Saint George.

### Medical Appointments.

Dr. W. E. A. Hughes-Jones has been appointed a member of the Cancer Institute Board nominated by the Royal Melbourne Hospital in the Department of Health, Victoria.

Dr. G. E. Duerrheim has been appointed Medical Officer, Mental Hygiene Branch, Department of Health, Victoria.

Dr. K. W. Walsh has been appointed Medical Officer, Mental Hygiene Branch, Department of Health, Victoria.

Dr. Gweneth Wisewould has been appointed public vaccinator for the Shire of Kyneton, Victoria.

Dr. J. E. D. Lane has been appointed public vaccinator for the Shire of Orbost, Victoria.

Dr. J. S. Heitmann has been appointed Medical Officer in the Department of Public Health, South Australia.

Dr. P. Kalinovsky and Dr. G. Kalinovsky have been appointed honorary medical officers to the Barmera Hospital, South Australia.

### Deaths.

The following deaths have been announced:

SKINNER.—Harrison Booth Skinner, on December 8, 1952, at Rockhampton, Queensland.

NICHTERLEIN.—Otto Erhard Nichterlein, on December 9, 1952, at Adelaide.

KELLAWAY.—Charles Halliley Kellaway, on December 14, 1952, at London.

CARTER.—John Northleigh Carter, on December 18, 1952, at Hornsby, New South Wales.

KAY.—Stuart Kay, on December 25, 1952, at Sydney.

ALEXANDER.—Nathan Marcus Alexander, on December 26, 1952, at Randwick, New South Wales.

ROBERTSON.—William Lincoln Robertson, on December 28, 1952, at Killara, New South Wales.

### Nominations and Elections.

The undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Rose, Herbert Norman, M.B., 1948 (Univ. Sydney), 70 Queen's Road, New Lambton, New South Wales.

Russell-Jones, Colin Graham, M.B., B.S., 1952 (Univ. Sydney), "Garary", Epping Road, North Ryde, New South Wales.

Buchbinder, Franz Joachin, registered in accordance with the *Medical Practitioners Act*, 1938-1950, Section 17 (1) (c), 47 Ann Street, Enfield, New South Wales.

Morison, Bruce Dudley, M.B., B.S., 1952 (Univ. Sydney), Goulburn Base Hospital, Goulburn, New South Wales.

Garton, David Sydney, M.B., B.S., 1952 (Univ. Sydney), 115 Edgeworth David Avenue, Wahroonga, New South Wales.

Botond, Paul, provisionally registered in accordance with the *Medical Practitioners Act*, 1938-1950, Section 17 (1) (c), 12 Edgar Street, Auburn, New South Wales.

### Diary for the Month.

JAN. 13.—New South Wales Branch, B.M.A.: Executive and Finance Committee.

JAN. 16.—Queensland Branch, B.M.A.: Council Meeting.

JAN. 20.—New South Wales Branch, B.M.A.: Medical Politics Committee.

### Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

*New South Wales Branch* (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

*Victorian Branch* (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federal Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

*Queensland Branch* (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

*South Australian Branch* (Honorary Secretary, 178 North Terrace, Adelaide): All Contract Practice appointments in South Australia.

*Western Australian Branch* (Honorary Secretary, 205 Saint George's Terrace, Perth): Norseman Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

### Editorial Notices.

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